ARMY, MARINE CORPS, NAVY, AIR FORCE

SURVIVAL, EVASION, AND RECOVERY

MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR SURVIVAL, EVASION, AND RECOVERY

ATP 3-50.3 [FM 3-50.3]
MCRP 3-02H
NTTP 3-50.3
AFTTP 3-2.26

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MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES

FOREWORD

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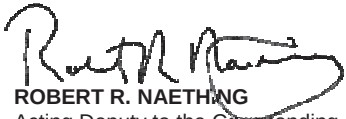

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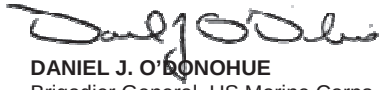

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QUICK REFERENCE CHECKLIST

S	SIZE UP THE SITUATION
U	USE ALL YOUR SENSES / UNDUE HASTE MAKES WASTE
R	REMEMBER WHERE YOU ARE
V	VANQUISH FEAR AND PANIC
I	IMPROVISE
V	VALUE LIVING
A	ACT LIKE THE NATIVES
L	LIVE BY YOUR WITS, BUT FOR NOW, LEARN BASIC SKILLS

FIVE PHASES OF EVASION

1. Immediate Actions – REMAIN CALM. THINK BEFORE YOU ACT!

a. Assess the immediate situation.
b. Assess your medical condition; treat problems as necessary (chapter V).
c. Protect yourself from chemical, biological, radiological, and nuclear hazards (chapter IX).
d. Gather equipment; determine the need to travel (chapter II).
e. Establish an initial hide site. (chapter I)
f. Make an initial radio contact in accordance with (IAW) your communication plan/special instructions (SPINS).
g. Sanitize self of compromising information (chapter I).
h. Sanitize the area; hide equipment you decide to leave.
i. Retain clothing and personal protection equipment (i.e., body armor).
j. Apply initial personal camouflage (chapter I).

2. Initial Movement.

a. Move in the direction of your evasion plan of action (EPA)/contingency plan.
b. Break the line of sight (LOS) from your initial isolation area and move to an area providing adequate concealment, uphill if possible.
c. Move out of the initial area (chapter II). A zig-zag pattern is recommended.
d. Use terrain and concealment to your advantage.
e. Move to a hide site.

3. Hide Site.

a. Select a hide site that provides:
(1) Concealment from ground and air searches.
(2) A safe distance from the enemy, high traffic areas, and natural lines of drift.
(3) Listening and observation points.
(4) Multiple avenues of escape.

(5) Protection from the environment.
(6) Communications/signaling.

b. Be prepared to authenticate IAW your communication plan/SPINS.
c. Establish radio contact IAW your communication plan/SPINS.

Note: Communications/signaling devices may compromise your position.

d. Drink water (chapter VII); treat injuries (chapter V).
e. Reevaluate the tactical situation.
f. Inventory equipment.
g. Review and execute your EPA/contingency plan.
h. Determine your location.
i. Improve camouflage.
j. Stay alert, maintain security, and be flexible (combat mindset).

4. Evasion Movement (Chapters I and II).

a. Travel slowly and deliberately. Intermittently stop, look, listen, and smell.
b. Do not leave evidence of travel.
c. Maintain noise and light discipline.
d. Stay away from heavily trafficked areas/natural lines of drift.
e. Move from one point of concealment to another point of concealment.
f. Use evasion movement techniques (chapter I).

Note: You are more at risk of detection during movement.

5. Recovery (Chapters III and IV).

a. Select site(s) IAW criteria in theater recovery plans.
b. Select suitable area for recovery.
c. Prepare for use of communications and signaling devices.
d. Prepare to transmit position using search and rescue numerical encryption grid (SARNEG) (distance and direction).
e. Observe/report enemy activity and hazards.
f. Secure equipment.
g. Stay concealed until recovery is imminent.
h. Be prepared to authenticate via isolated personnel report (ISOPREP).
i. During recovery:
(1) Follow the recovery force's instructions.
(2) Secure your weapon.
(3) Assume a non-threatening posture.

CAUTION

Beware of rotors/propellers when approaching the recovery vehicle, especially on sloping or uneven terrain.

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11 September 2012

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CHAPTER I EVASION 1

1. General 1
2. Camouflage and Concealment 1
3. Hide Site/Hold-Up Areas 2
4. Movement 4

CHAPTER II NAVIGATION 9

1. General Considerations 9
2. Methods of Determining General Location 9
3. Determining Cardinal Directions Without a Compass 10
4. Methods to Orient a Map to the Lay of the Land 13

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5. Methods to Determine Specific Location 15
6. Methods of Navigation 16
7. Route Selection Techniques 18
8. Travel Considerations 20
9. River Travel 21
10. Ice and Snow Travel 21
11. Desert Climate Travel 23
12. Tropical Climates 23
13. Open Seas 24

CHAPTER III RADIO COMMUNICATION AND SIGNALING 27

1. Radio Communications (Voice and Data) 27
2. Signaling 30

CHAPTER IV RECOVERY 35

1. Responsibilities 35
2. Initial Actions 35
3. Actions on the Ground/in the Water 36
4. Site Selection 36
5. Prepare for Recovery 36
6. Communicate with the Recovery Force 36
7. General Principles of Recovery 37
8. Rescue Devices 38
9. Unassisted Recovery 40

CHAPTER V SURVIVAL MEDICINE 41

1. Medical Considerations for High-Threat Survival and Evasion Situations 41
2. Tactical Medicine for Reduced-Threat Survival and Evasion Scenarios 42
3. Common Injuries and Illnesses 47
4. Plant Medicine 50
5. Health and Hygiene 53
6. Rules for Avoiding Illness 53

CHAPTER VI PERSONAL PROTECTION 55

1. Care and Use of Clothing/Personal Protection Equipment 55
2. Improvised Personal Protection Equipment 56
3. Other Protective Equipment 58
4. Shelters (See Appendix C, Table 9) 58
5. Fires 63

CHAPTER VII WATER 69

1. Water Requirements 69
2. Signs and Symptoms of Dehydration 69

3. Water Procurement 69
4. Water Preparation and Storage 73

CHAPTER VIII FOOD 75

1. Food Sources 75
2. Food Preparation 83
3. Food Preservation 84

CHAPTER IX INDUCED CONDITIONS 85

1. Nuclear Conditions 85
2. Biological Conditions 90
3. Chemical Conditions 90

CHAPTER X URBAN EVASION 93

1. Legal Aspects 93
2. Blending Techniques 93
3. Direction of Travel 93
4. Urban Evasion Movement Techniques 93
5. Urban Hold-Up Areas/Hide Sites. 96
6. Signaling, Communications Considerations, and Limitations ... 96
7. Recovery Sites 96
8. Food and Water in Urban Areas 97

APPENDIX A THE WILL TO SURVIVE 99

1. Psychology of Survival 99
2. Spiritual Considerations 100

APPENDIX B THE CODE OF CONDUCT 101
APPENDIX C SURVIVOR TIPS AND TOOLS 103
APPENDIX D INDIVIDUAL SURVIVAL KIT CONSIDERATIONS 107

1. Basic Considerations 107
2. Construction 107
3. Other Items and Considerations 107

APPENDIX E PUBLICATION INFORMATION 109
GLOSSARY 113

List of Figures
Figure 1. Camouflage Patterns 2
Figure 2. J Hook and Dog-leg Methods of Approaching a Hide Site 4
Figure 3. Railroad Track Crossing 6
Figure 4. Visualizing Your Position 10
Figure 5. Stick and Shadow Method 11
Figure 6. Wristwatch Method to Determine North/South Line 12
Figure 7. Celestial Aids (Stars) Method to Determine North/South Line ... 12
Figure 8. Stick or String Method (no map) 13
Figure 9. Align Compass on a Map 14

Figure 10. Map Orientation with Compass Rose 14
Figure 11. Single Line of Position 16
Figure 12. Biangulation and Triangulation 16
Figure 13. Setting up Compass for Night Navigation 17
Figure 14. Dogleg and 90 Degree Offset 19
Figure 15. Deliberate Offset 20
Figure 16. Improvised Snowshoes 22
Figure 17. Radio Transmission Characteristics 27
Figure 18. Vertical half rhombic antenna 29
Figure 19. Long-wire antenna 29
Figure 20. Sloping-V antenna 30
Figure 21. Improvised Mirror Aiming Techniques 31
Figure 22. Size and Ratio 32
Figure 23. Aircraft Vectoring 37
Figure 24. Rescue Strap 38
Figure 25. Forest Penetrator 39
Figure 26. Fixed Loop 39
Figure 27. Tourniquet 42
Figure 28. Improvised Tourniquet 42
Figure 29. Open Airway 43
Figure 30. Useful Plants 51
Figure 31. Five Ways to Lose Body Heat 56
Figure 32. Improvised Foot Wear 57
Figure 33. Sun and Snow Goggles 57
Figure 34. Gaiters 58
Figure 35. Immediate Shelters 59
Figure 36. Thermal A-Frame 60
Figure 37. Snow Trench 60
Figure 38. Snow Cave 61
Figure 39. Quinzee Shelter 61
Figure 40. Poncho/Parachute Shade Shelter 62
Figure 41. Elevated Platform Shelter 62
Figure 42. Shingle Method 63
Figure 43. Fuel Sources with Fire Platform/Brace 64
Figure 44. Tepee, Log Cabin, Pyramid Fires 65
Figure 45. Long Fire 66
Figure 46. Sod Fire 66
Figure 47. Dakota Fire Hole 67
Figure 48. Water Indicators 69
Figure 49. Incidental Water Collection – Snow or Ice 70
Figure 50. Water Vines 71
Figure 51. Beach Well 72
Figure 52. Transpiration Bag 72
Figure 53. Vegetation Bag 73
Figure 54. Seepage Basin 73

Figure 55. Common Edible Plants 76
Figure 56. Umbrella Shaped Flower (Hemlock) 78
Figure 57. Improvised Fish Hooks and Spears 81
Figure 58. Snare Placement 82
Figure 59. Locking Loops 82
Figure 60. Squirrel Pole 82
Figure 61. Funneling 83
Figure 62. Procurement Devices 83
Figure 63. Immediate Action Shelter 85
Figure 64. Improvised Shelter 86
Figure 65. Filtration Systems, Filtering Water 88
Figure 66. Filtration Systems, Settling Water 88
Figure 67. Protractor with Coordinate Scale (NOT TO SCALE) 105
Figure 68. Survival Kit Items 108

List of Tables

Table 1. Raft Procedures 24
Table 2. Pattern Signals 32
Table 3. Plant Edibility Test 78
Table 4. Loop Sizes 81
Table 5. Radiation Shielding Efficiencies 87
Table 6. English System of Linear Measure 103
Table 7. Metric to English Conversions 103
Table 8. Map Scales – English and Metric 103
Table 9. Criteria for Shelter Construction 104
Table 10. Rule of 3 104

NOTES

Chapter I
EVASION

1,000 days of evasion are better than one day of captivity.

1. General

a. Review the quick reference checklist at the front of this publication.

b. Follow these guidelines for successful evasion:

(1) Keep a positive attitude.

(2) Maintain security.

(3) Follow your evasion plan of action (EPA) or contingency plan.

(4) Maintain radio, light, and noise discipline.

(5) Be patient and flexible.

(6) Drink water.

(7) Conserve strength for critical periods.

(8) Rest and sleep as much as possible.

(9) Stay out of sight and maintain a low profile.

(10) Mask your scent using natural materials such as dirt or vegetation.

2. Camouflage and Concealment

a. Basic principles:

(1) Disturb the immediate area as little as possible.

(2) Avoid activity that reveals movement to the enemy.

b. Apply personal camouflage patterns to match the environment (figure 1):

(1) Head and Face.

(a) Use dark colors on high spots.

(b) Use light colors on remaining exposed areas.

(c) Use a hat, netting, or a mask if available.

(d) Use natural stains from grasses, berries, dirt, and charcoal.

(2) Ears.

(a) Inside and back of ears should have two colors to break up outlines.

(b) Cover if possible.

(3) Neck, Hands, and Under Chin. Use a scarf or collar, or some netting, vegetation, or coloration methods.

(4) Light-colored Hair/No Hair. Give special attention to conceal light-colored hair or bald/shaven head with a scarf or mosquito head net.

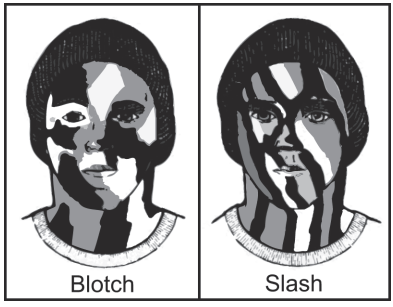

Figure 1. Camouflage Patterns

c. Position and movement camouflage and concealment.

(1) Avoid unnecessary movement.

(2) Take advantage of natural concealment.

(a) Cut foliage fades and wilts when used as camouflage; change regularly to match current environment.

(b) Change camouflage depending on the surroundings.

(c) DO NOT select all vegetation from the same source.

(3) DO NOT over-camouflage.

(4) Remember, when using shadows, they shift with the sun.

(5) Avoid exposing shiny objects (i.e., watches, glasses, pens, boots).

(6) Ensure watch alarms, cell phones, and electronic chimes are turned off.

(7) Sanitize uniform (unit patches, insignia, etc.) IAW Service/unit standard operation procedure (SOP).

(8) Break up the outline of the body (i.e., the "V" of crotch and armpits, or head and shoulders.

(9) Observe from a concealed position.

d. Disguise (see chapter X).

3. Hide Site/Hold-Up Areas

a. Hide Site. These are locations chosen to temporarily hide during an immediate evasion situation. Activities in a hide site should not go beyond security, rest, camouflaging, and planning for additional movement. Hide sites are generally occupied for no more than 24 hours and do not include fire building or food preparation. Movement should be restricted in a hide site.

b. Hold-Up Areas. These areas are used to rest, recuperate, and get and prepare food while planning your next action. Hold-up areas are usually located near a water source and you can move away from a hold-up area to get food or locate a fire site.

c. Do not choose an obvious location that looks like a good hiding place to others. Abandoned buildings and structures will certainly be searched by hostile forces.

d. Ensure the area is large enough and level enough to lie down comfortably.

e. Choose an area with observable approach and escape routes.

f. Observe prior to occupation utilizing a listening post/observation post (LP/OP) position. Be cautious upon approach (see figure 2).

g. Use brush, ridges, ditches, and rocks to avoid evidence of travel.

h. Locate your hide-site/hold-up area carefully. Use the acronym “BLISS” when seeking and constructing shelter.

B	BLEND	(blend with the environment)
L	LOW SILHOUETTE	(smaller than the surroundings)
I	IRREGULAR SHAPE	(natural looking)
S	SMALL	(just large enough for you and your gear)
S	SECLUDED LOCATION	(one that is the least likely to be searched)

i. Be wary of natural hazards such as flash floods in ravines and canyons.

j. Economize actions to minimize detection.

k. Conceal with minimal to no preparation.

l. Ensure overhead concealment.

m. Attempt to return the area to its original state before you start your movement.

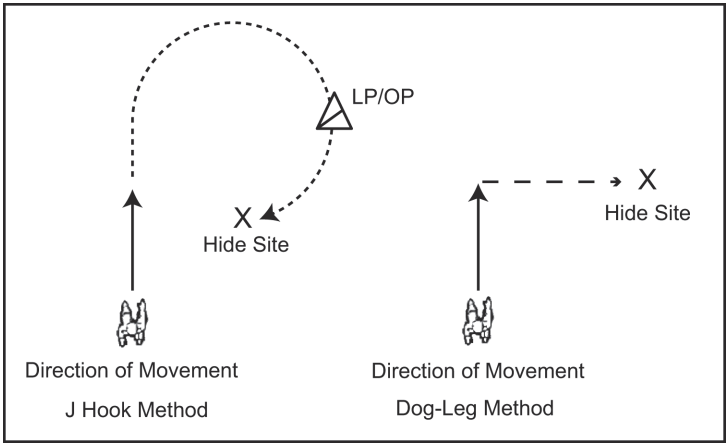

Figure 2. J Hook and Dog-leg Methods of Approaching a Hide Site

4. Movement

a. Move only when:

(1) Dictated by the threat or natural hazards.

(2) You are certain of your location, destination, and ability to get there.

(3) You are able to reach water, food, shelter, and/or help.

(4) You are convinced rescue is not coming to your current location.

b. When you decide to move:

(1) Follow your EPA/contingency plan.

(2) Determine which direction to travel and why.

(3) Decide what equipment to take, cache, or destroy.

(4) Consider night or low light movement using darkness as concealment, if feasible.

(5) Consider moving through hazardous terrain (e.g., jungle or mountains) during daylight, which may be more secure and safe.

(6) Stop movement with enough time before sunrise to find concealment or shelter.

c. If movement is necessary:

(1) Remember, a moving object is easy to spot.

(2) Mask self with natural cover (i.e., terrain, shadows, vegetation).

(3) Avoid creating a silhouette by staying off ridgelines and exposed high ground. Use the “military crest” (2/3 of the way up a hill).

(4) Use periods of low light, bad weather, wind, or reduced enemy activity.

(5) Watch for trip wires or booby traps.

(6) At irregular intervals conduct **SLLS** (i.e., stop, look, listen, smell):

(a) **STOP** at a point of concealment.

(b) **LOOK**, **LISTEN**, and **SMELL** for signs of human or animal activity.

Note: Peripheral vision, also called "off center viewing" is best for recognizing movement at night/twilight.

d. Minimize evidence of movement. Route selection requires detailed planning and patience (i.e., irregular route or zig-zag).

(1) DO NOT break branches, leaves, or grass. Use a walking stick to part vegetation and push it back to its original position.

(2) DO NOT grab small trees or brush. (This may scuff the bark or create movement that is easily spotted. In snow country, this creates a path of snowless vegetation.)

(3) Pick firm footing. Try not to:

(a) Overturn ground cover, rocks, and sticks.

(b) Scuff bark on logs and sticks.

(c) Make noise by breaking sticks. Cloth wrapped feet muffles noise.

(d) Mangle grass and bushes.

(e) Walk on mud or soft ground.

(4) Mask unavoidable tracks in soft footing:

(a) Place tracks in the shadows of vegetation, downed logs, and snowdrifts.

(b) Move before and during precipitation; this allows tracks to fill in.

(c) Travel during inclement weather.

(d) Take advantage of solid surfaces leaving less evidence of travel.

(e) Use cloth or vegetation on feet.

(f) Pat out tracks.

(5) Secure trash and loose equipment; if discarding items, ensure they are well hidden or buried deeply.

(6) If pursued by dogs, concentrate on defeating the handler.

(a) Rapidly increase time and distance.

(b) If your location is known, attempt to travel downwind of dog/handler.

(c) Travel through rough terrain or dense vegetation to slow handler.

e. Use a zig-zag route, if possible.

f. Obstacles. When unavoidable, penetrate obstacles as follows:

(1) Always plan a route to, through, and away from obstacles.

(2) Attempt to keep a low profile when going around, over, under, or through obstacles. Check for mines, trip wires, flares, etc. prior to penetrating.

(a) Ditches.

- Enter deep ditches feet first to avoid injury.

(b) Fences.

- DO NOT touch the fence. Look for electrical insulators.
- Go around chain-link and wire fences.
- Go under fences if they are unavoidable, crossing at damaged areas.

(c) Roads.

- Cross roads after observation from concealment area to determine enemy activity.
- Cross at points offering concealment, such as bushes, shadows, or bends in the road. Approach and cross at 90 degrees angles.
- Cross sideways in a manner that leaves footprints parallel to the road. This is done by stepping sideways.

(d) Railroad tracks.

- Use the same method of observation as for roads; then lower your body to the ground parallel to the tracks with your face down.
- Cross tracks using a pushup motion moving sideways (figure 3).

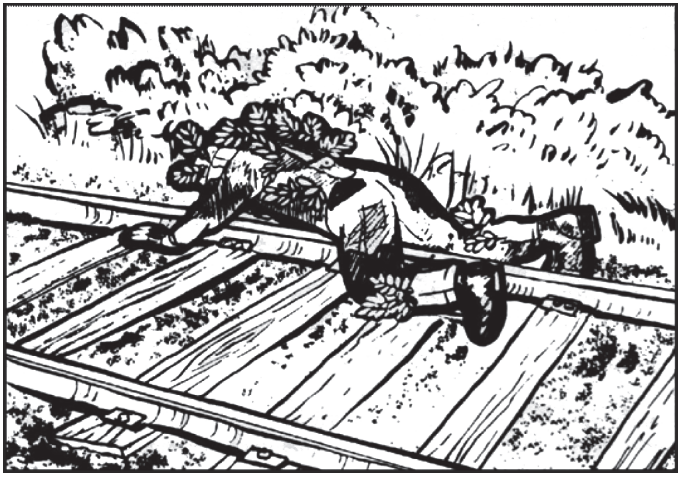

Figure 3. Railroad Track Crossing

WARNING

If there are three rails, one may be electrified. Look for indicators such as electrical warning signs, power sources, or wires.

g. Cultural Aspects.

(1) Recall and follow any information dealing with:

(a) Local customs, patterns of life, and culture.

(b) Population's attitudes and expected actions towards coalition forces.

(c) Language and religion.

(d) Population control measures (i. e., curfews).

(2) Avoid populated areas. Most, if not all groups, tribes or individuals represent a risk to isolated personnel unless briefed otherwise.

(3) Follow rules of engagement (ROE) when dealing with locals.

h. For urban considerations, see chapter X.

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Assess the threat and apply appropriate evasion principles.

1. General Considerations

a. Avoid compromising information when using a map in a combat environment.

(1) DO NOT write on the map.

(2) DO NOT soil the map by touching the destination.

(3) DO NOT fold in a manner providing travel information.

b. Considerations for non-combat:

(1) Stay in place (e.g., with your vehicle, in a shelter).

(2) If you do not stay in place, leave information at your starting point to include:

(a) Destination and route of travel.

(b) Personal condition.

(c) Supplies available.

c. When using a global positioning system (GPS):

(1) Ensure the equipment is working properly, the battery is fresh, and always carry a spare battery.

(2) Reduce the risk of equipment malfunction by protecting the device from environmental extremes such as sunlight, grit, moisture, etc.

(3) Familiarity with the equipment is imperative, especially if required to use it in low light or complete darkness.

(4) Know how to load coordinates into the GPS.

(5) Understand how these coordinates could be compromised in a hostile situation.

(6) Know how to zero the device if capture is imminent.

2. Methods of Determining General Location

a. When navigating without a map, GPS, or compass, determine your general position and direction based on previous knowledge (e.g., movement is east toward the border).

b. Utilize your working knowledge of the operational area.

(1) Identify and orient yourself to observable geographic and man-made reference points (terrain comparison). (See figure 4.)

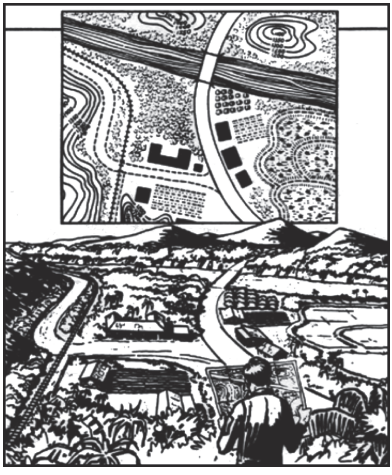

Figure 4. Visualizing Your Position

(2) Use formula: Rate x Time = Distance (from last known position).

(3) Visualize a map to determine position based on prior knowledge.

3. Determining Cardinal Directions Without a Compass

Note: In general, the sun and moon rise in an easterly and set in a westerly direction.

a. Use stick and shadow method to determine the true north/south line (figure 5).

(1) Mark the shadow tip with a stone, twig, or other means. This first shadow mark is always the west direction. Standing with the first mark (west) to your left; north is to the front, east is to the right, and south is behind you (this fact is true whether in the northern or southern hemisphere).

Note: Telephone poles, antennas, and buildings can be used as a passive stick and shadow, as in figure 5.

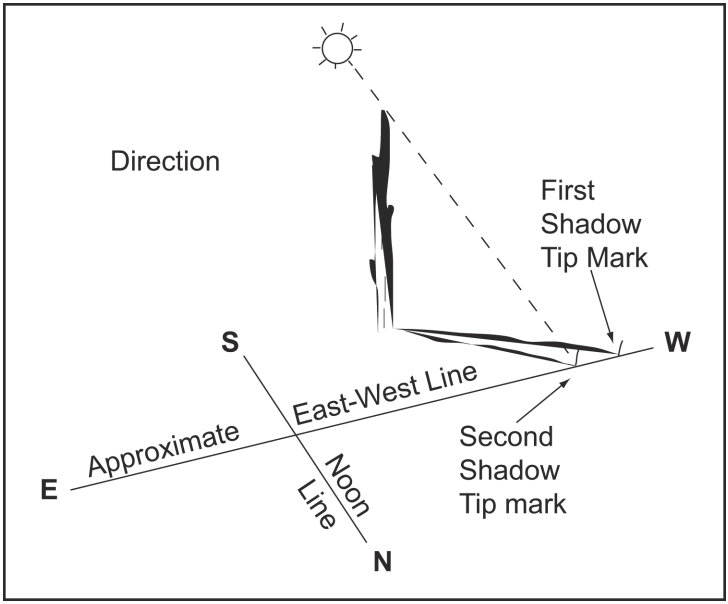

Figure 5. Stick and Shadow Method

b. Use a wristwatch to determine the general cardinal direction when the current local time is known (figure 6). With digital watches, visualize a clock face on the watch.

(1) In the southern hemisphere, point the watch's twelve o'clock mark toward the sun. If the watch is set to daylight savings time (DST), point the one o'clock mark toward the sun. Bisect the angle between the twelve o'clock mark, or one o'clock mark if using DST, and the hour hand to find the North/South line. To determine which end of the line is north, the sun is due north at midday in the southern hemisphere.

(2) In the northern hemisphere, point the hour hand at the sun. Bisect the angle between the hour hand and the twelve o'clock mark on the watch to find the North/South line (if DST, bisect the angle between the hour hand and the one o'clock mark instead). To determine which end of the line is north, the sun is due south at midday in the northern hemisphere.

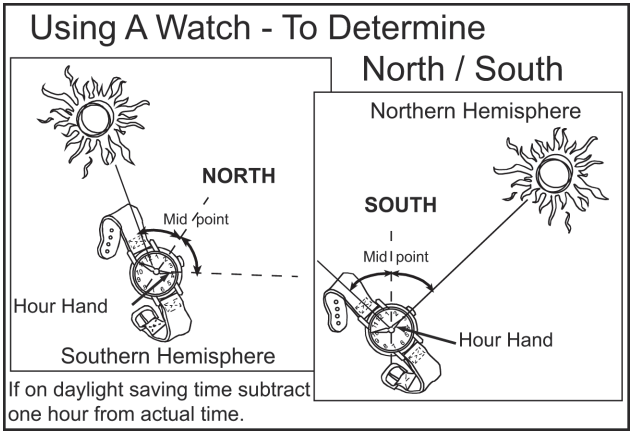

Figure 6. Wristwatch Method to Determine North/South Line

Note: This method requires standard time. If your watch is on daylight savings time, turn it back one hour.

c. Use stars to find cardinal directions (figure 7).

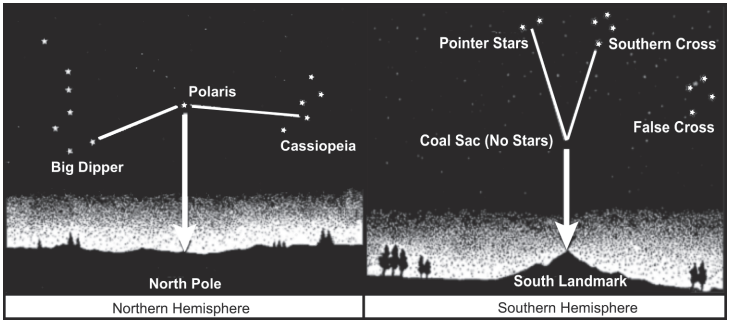

Figure 7. Celestial Aids (Stars) Method to Determine North/South Line

d. Use a stick or string method, without a map, to construct a compass (figure 8).

(1) Take two straight sticks (30” long) or string (550 cord).

(a) Lay one stick on the ground pointed directly toward the polar position (determined using figure 8).

(b) Extend arms, hands together, thumbs apart to use as sighting tool.

(c) Adjust stick so it perfectly aligns with the swing of your arms.

(2) Stick is now pointing to true north.

(3) Lay second stick perpendicular to first to get true east/west direction.

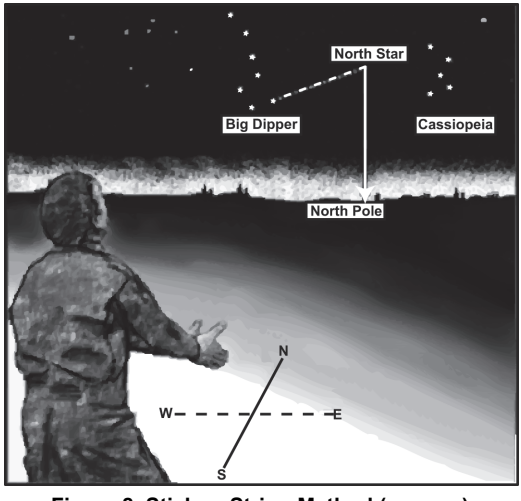

Figure 8. Stick or String Method (no map)

4. Methods to Orient a Map to the Lay of the Land

a. Without Compass. Orient North/South edge of a map in alignment with the north/south cardinal directions obtained in previously shown methods.

b. With Compass.

(1) Unfold map and place on a firm, flat, level nonmetallic surface.

Note: Avoid any metal near the compass (i.e., batteries, weapons, buckles); and keep the compass level during use.

(2) Align compass on a North/South line on the map (figure 9).

(a) Rotate the map and compass together until the magnetic needle or card on the compass represents the offset of the east or west declination (shown on the declination diagram in figure 9).

(b) Your compass face will now look like the declination diagram (the magnetic arrow will be offset the same as the diagram).

Note: Do not place the compass on the declination diagram to orient the map.

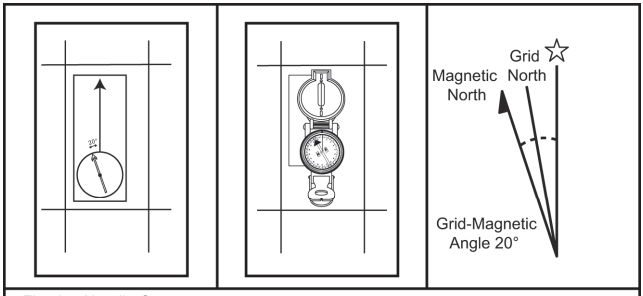
Grid
Magnetic North
North
Grid-Magnetic
Angle 20°
Floating Needle Compass
Lensatic Compass
Declination Diagram
Your compass face should look the same as in the declination diagram. Magnetic arrow on the compass is 20 degrees west of the North/South line as shown on the declination diagram. The map is oriented to the lay of the land.

Figure 9. Align Compass on a Map

c. Using a Compass Rose (figure 10).

(1) Place the edge of the compass on magnetic north of the compass rose closest to your location.

(2) Rotate the map and compass until compass reads 360 degrees.

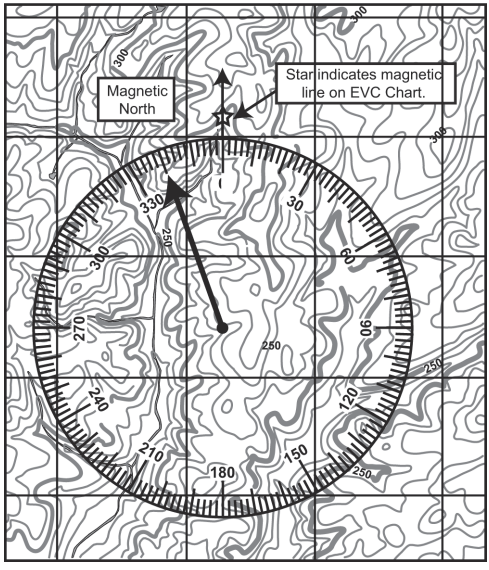

Figure 10. Map Orientation with Compass Rose

5. Methods to Determine Specific Location

Note: Be prepared to give coordinates and datum to rescue forces when asked.

a. Using a GPS:

(1) More sky equals better accuracy and quicker position identification.

(2) More frequent position fixes equal shorter time to acquire the next position.

(3) GPS is very susceptible to jamming and interference.

(4) Indications of jamming/spoofing include:

(a) **Continuous, one-directional "marching."** Receiver shows a continuous "marching" of latitude or longitude (value can continuously increase or decrease in a single direction).

(b) **Obviously incorrect position data**. You know your rough position but the GPS receiver shows a location that is obviously incorrect (i.e., you are in Afghanistan, but GPS receiver shows 18S 3234 4396 which is the National Mall).

(c) **"Jumping" position data**. Receiver position jumps between significantly different positions (more than one tenth of a degree).

(5) Protecting against jamming/interference. Determine the relative location of the jamming signal and block it using your body or a structure:

(a) Place the GPS receiver in a hole (16" x 12") or,

(b) Build a wall (18" x 14") between the GPS receiver and jammer.

(6) Conserve GPS battery life.

(7) Use your GPS to find a location and plan the heading and distance to a new location, then turn off the GPS and use a compass for point to point navigation.

b. Using single line of position and angulation/resection to determine position.

(1) Single line of position on an oriented map:

(a) Take a bearing to a single, prominent terrain feature that you have identified on the map and have observed on the terrain.

(b) Place the bearing line on the map with a stick or string and determine your position along that line in relation to observable linear feature near you on that line (figure 11).

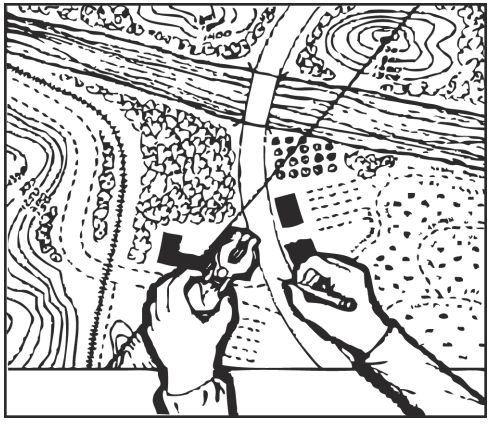

Figure 11. Single Line of Position

(2) Angulation/resection (biangulation/triangulation):

(a) Identify two or three prominent terrain features that are at least 30-120 degrees apart and that you have also positively identified on the map.

(b) Take a bearing to each and place them on the map using sticks or string.

(c) Determine your position in the area where the lines meet.

(d) Use observable terrain features nearby, also identified on the map, to further identify your specific location (figure 12).

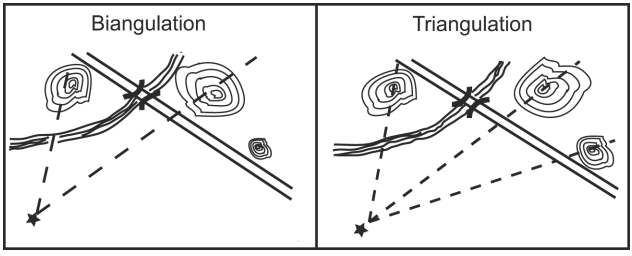

Figure 12. Biangulation and Triangulation

Note: Check map orientation each time compass is used, to avoid confusion.

6. Methods of Navigation

a. Navigate at night using a lensatic compass (figure 13).

(1) Setting up the compass for night navigation by aligning north-seeking arrow with luminous line and follow the front of the compass.

(2) Use point-to-point navigation.

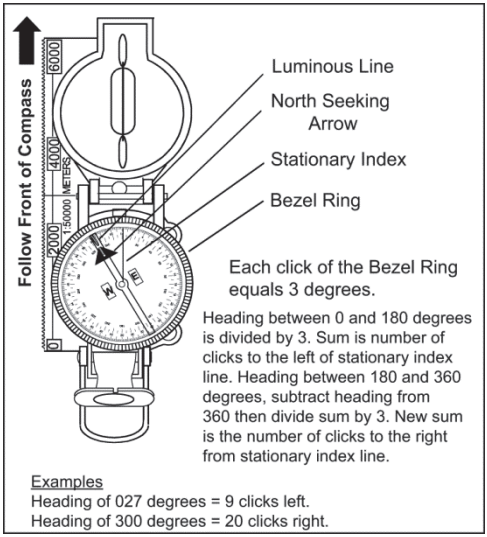
Follow Front of Compass
6000
4000
METERS
2000
50000
Luminous Line
North Seeking Arrow
Stationary Index
Bezel Ring
Each click of the Bezel Ring equals 3 degrees.
Heading between 0 and 180 degrees is divided by 3. Sum is number of clicks to the left of stationary index line. Heading between 180 and 360 degrees, subtract heading from 360 then divide sum by 3. New sum is the number of clicks to the right from stationary index line.
Examples
Heading of 027 degrees = 9 clicks left.
Heading of 300 degrees = 20 clicks right.

Figure 13. Setting up Compass for Night Navigation

b. Navigation at night using a needle compass.

(1) Ensure the needle is charged with a light source prior to use.

(2) Dial in the desired bearing.

Note: Be sure to maintain night discipline in a tactical environment.

c. Navigate at night using stars (no compass).

(1) Place a second stick perpendicular to north/south stick in alternate method (figure 8). Second stick is east/west line, two sticks make up a compass rose.

(2) Determine the heading desired to travel (calculate some degree of error based on terrain, distance, accuracy of known position, and enemy).

(3) Align yourself by standing behind your compass looking in the direction you plan to travel.

(4) Use your straight arm sighting method shown in figure 8. While looking between your thumbs, move your hands from the compass rose at your feet upward to the horizon point on your heading. Note objects/terrain features on your heading.

(5) Identify a specific object on your heading that will be easy to keep in view as you travel, and one you can recognize when you arrive (e.g., a tree, boulder, or field).

(6) When arriving at the recognized object, lay your stick compass out in the same method described in paragraph c.(4) and select a second point. Repeat this process until you arrive at your intended destination.

7. Route Selection Techniques

Note: Prior to selecting the navigation method and route, consider evasion principles, distance, environment, time of day, terrain, man-made hazards, lay up points, rally points, and physical condition.

a. Straight-line heading.

(1) Determine the desired heading to travel.

(2) Maintain the heading until reaching the desired destination.

(3) Keep track of the number of paces traveled to monitor progress.

(a) One pace equals the distance between each time the same foot touches the ground.

(b) Distances measured by pace are approximate.

- Open terrain. There are 65 paces per 100 meters (average).
- Rough terrain. There are 90-100 paces per 100 meters (average).

(c) Track pace. Put a pebble in your pocket or a knot in a string every 100 meters.

(d) Use pace count along with terrain elevation and heading to determine your location.

Note: Individual paces vary due to factors such as steep terrain, day/night travel, injured and uninjured condition. Adjust your estimation as necessary to improve accuracy.

b. Point-to-point.

(1) Navigate to observable/discernable terrain features along your course.

(2) Repeat until the desired destination is reached.

(3) If no identifiable terrain feature exists, an individual can be directed along a bearing for a reasonable distance and others can move to that position.

c. Circumnavigation.

(1) Find a prominent landmark on the opposite side of an obstacle on the current heading.

(2) Go around obstacle to the landmark.

Note: Pace count may not be accurate.

(3) Resume your route of travel.

d. Dogleg and 90 degree offset (figure 14).

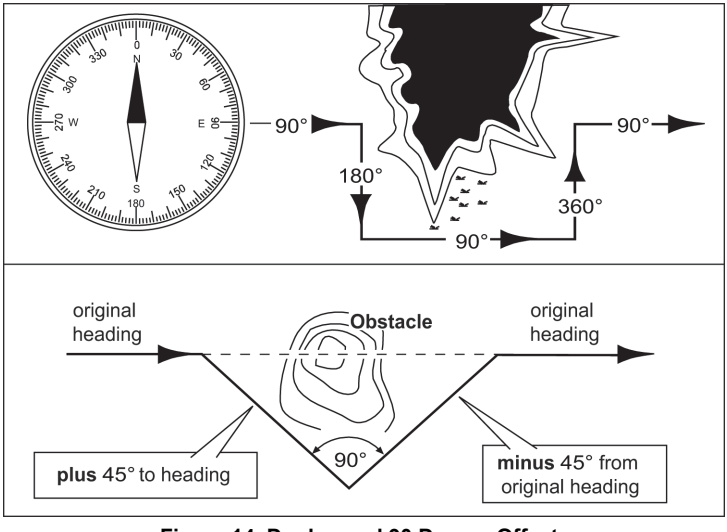

Figure 14. Dogleg and 90 Degree Offset

e. Deliberate offset (calculated error):

(1) Use a deliberate offset when finding a point on a linear feature (e.g., road, river, or power lines).

(2) Intentionally navigate to left or right of the target so you know which way to turn at the linear feature (figure 15).

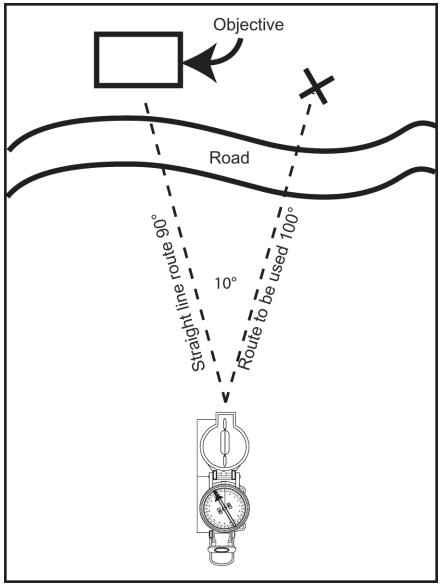

Figure 15. Deliberate Offset

8. Travel Considerations

a. Maintain a realistic pace.

b. Take rest stops when needed.

c. Avoid overdressing and overheating.

d. Consider food and water requirements.

e. Take special care of feet (change socks regularly).

f. Pack equipment to prevent loss, damage, imbalance, and noise, and to enhance personal safety.

g. Attempt to go around obstacles, not over or through them.

h. Avoid travel on trails, if possible.

i. Travel in forested areas, if possible.

j. Avoid creek bottoms and ravines in the event of heavy rains.

k. Avoid high ground during lightning storms.

l. If at all possible, do not use a bridge when evading. Bridges and their approaches are in the open and prime places for booby traps and concealed guards. Watch for local population activity from concealment.

m. Circumnavigate lakes and bogs when possible.

n. When in mountainous terrain:

(1) Move along the contour to maintain elevation.

(2) Travel upstream to avoid people and find narrower, shallow, and slower moving water.

o. An evader's goal should be to eat and drink as soon as possible after isolation, even if not hungry or thirsty. The average person needs 2,000 calories a day to survive. If rations are available, use them to augment plant and animal foods.

p. Water is a must for survival. Purify the water as best you can and drink what is needed to survive. Dehydration will incapacitate an evader in a short period of time. Having the ability to carry and transport water is a must. Procure or improvise a way to carry and transport water.

q. Avoid Travel Dangers

(1) Traveling long distances by foot in hot/dry regions is not recommended due to the daytime heat and need for water. Evaders should travel in low-light conditions or during pre-dawn to take advantage of the cooler temperatures, less human traffic, and low visibility conditions.

(2) A walking stick may be a helpful aid. It can be used to poke and prod vegetation for dangerous animals, such as snakes. It is also useful for detecting tripping hazards when evading at night. When travelling at night, hazards include abrupt cliffs, wadis, and uneven ground; evaders could sprain an ankle or worse. Movement in total darkness increases the chances of blundering into the enemy or making noise that draws attention. Mantraps and mines cannot be seen at night.

9. River Travel

a. River travel may be faster or save energy, but the danger of hypothermia exists.

b. River travel may be the primary mode and line-of-communication in a tropical environment. Use caution if evading.

c. Use flotation devices (i.e., a raft, or log, bamboo, or water bottles (trash)) when traveling on or crossing rivers or large/deep streams.

d. Use a pole on the upstream side when crossing a river.

e. Use a pole to move a raft in shallow water.

f. Use an oar to move a raft in deep water.

g. Keep near shore. Stay near the inside edge of river bends (slower current).

h. Use caution when traveling on rivers; avoid submerged objects, rapids, waterfalls, and hazardous animals.

10. Ice and Snow Travel

a. Use caution traveling in blizzards, poor visibility, and bitterly cold winds.

b. Ensure firm footing prior to placing the next step.

c. Obstacles to winter travel.

(1) Deep/Soft Snow. In deep or soft snow, add improvised snow shoes to disperse body weight (figure 16).

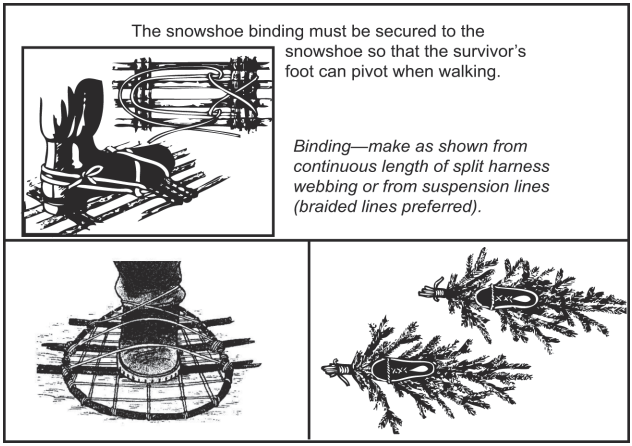
The snowshoe binding must be secured to the snowshoe so that the survivor's foot can pivot when walking.
Binding—make as shown from continuous length of split harness webbing or from suspension lines (braided lines preferred).

Figure 16. Improvised Snowshoes

(2) Avalanche.

(a) Avoid avalanche-prone areas (often triggered by human interaction):

- Slopes 30 to 45 degrees.
- Trees without uphill branches (identifies prior avalanches).
- Heavy snow loading or ridge tops.

(b) If caught in an avalanche:

- Move perpendicular to the hillside.
- Use swimming motion to remain on or close to the surface.
- Move a hand around your face to create an air pocket as snow slows.

(3) Frozen Water Crossings.

(a) Weak ice should be expected where:

- Rivers are straight.
- Objects protrude through ice.
- Snow banks extend over ice.
- River or streams come together.

- Water vapor rises; this indicates open or warm areas.
- Air pockets form when a frozen river loses volume.

(b) When crossing frozen water, distribute your weight by laying flat, belly crawling, or using snowshoes.

(c) Have long a pole and knife or other pointed tools available to prevent total submersion and assist with self-recovery in case ice breaks.

(4) Glaciers. Due to unseen dangers and hazards, traveling on glaciers should be avoided.

11. Desert Climate Travel

a. Consider remaining in place unless your water supply is sufficient enough to reach destination.

b. Travel at night to avoid heat.

c. Stop movement in time to find concealment or construct shelter prior to sunrise.

d. Sand Dune Areas.

(1) Follow hard valley floor between dunes.

(2) Travel on the windward side of dune ridges.

e. Sandstorms. If a storm occurs:

(1) Mark your direction of travel.

(2) Sit or lie down in the direction of travel until the storm passes.

(3) Try to get to the downwind side of natural shelter.

(4) Cover mouth, nose, and ears with pieces of cloth.

(5) Protect eyes.

12. Tropical Climates

a. Hazardous terrain and vegetation may force travel during daylight hours.

b. Obstacles such as thickets and swamps pose significant hazards, but may provide the best evasion environments.

c. Vegetation should be parted to pass through. Avoid grabbing vegetation; it may have spines or thorns. Use gloves if possible.

d. Go around logs when possible.

e. Trails are often located along waterways or mountain saddles.

f. When using trails:

(1) Watch for disturbed areas on game trails. They may indicate a pitfall or trap.

(2) Use a walking stick to probe for pitfalls or traps.

(3) DO NOT sleep on the trail.

(4) Be tactically aware at all times; the enemy also uses trails.

13. Open Seas

a. Raft Procedures. For all rafts, remember the five "A's." See table 1. These are the first actions you should take if you are the first person into a raft:

Table 1. Raft Procedures		
1	Assistance	Assist others into the raft.
2	Anchor	Ensure the sea anchor is deployed so that when the anchor is on the top wave, your raft is on the bottom of the wave (or vice versa) as you travel through wave crests and troughs.
3	Air	Ensure all chambers are inflated, all inflation valves are closed, and equalization tube clamps are clamped off when fully inflated.
4	Accessory Bag	Locate accessory bag.
5	Assessment	Assess the situation. Keep a positive mental attitude.

Note: Attach all equipment to raft or self.

b. Using currents to travel:

(1) Close sea anchor to make use of existing currents.

(2) Sit low in the raft.

(3) Deflate the raft slightly so it rides lower in the water.

CAUTION

Do not deflate the raft unless you have the means to re-inflate it.

c. Using wind to travel:

(1) Pull in sea anchor.

(2) Inflate raft so it rides higher.

(3) Sit up in raft so body catches wind.

(4) Construct a shade cover/sail.

d. Swimming ashore.

(1) Remain in the raft as long as possible.

(2) Consider your physical condition prior to attempt.

(3) Use a flotation aid.

(4) Secure all gear to body before reaching landfall.

(5) Use a sidestroke or breaststroke to conserve strength if thrown from the raft.

(6) Wear footgear and at least one layer of clothing.

(7) Try to make landfall during the lull between sets of waves.

(8) In moderate surf:

(a) Swim forward on the back of a wave.

(b) Make a shallow dive just before the wave breaks to end the ride.

(9) In high surf:

(a) Swim shoreward in trough between waves.

(b) When seaward wave approaches, face it and submerge.

(c) After it passes, work shoreward in the next trough.

(10) If caught in the undertow of large wave:

(a) Remain calm and swim to surface.

(b) Lie as close to surface as possible.

(c) Parallel shoreline – do not swim directly toward the beach.

(d) Attempt landfall at a point further down shore.

(11) Select a landing point:

(a) Avoid places where waves explode upon rocks.

(b) Find a place where waves smoothly rush onto rocks.

(12) After selecting a landing site:

(a) Face shoreward.

(b) Assume a sitting position with feet 2 or 3 feet lower than your head to absorb the shock of hitting submerged objects.

e. Rafting ashore.

(1) Select a landing point carefully.

(2) Land on the lee (downwind) side of islands or point of land, if possible.

(3) Head for gaps in the surf line.

(4) Penetrate surf by:

(a) Taking down most shade cover/sails.

(b) Using paddles to maintain control.

(c) Deploying sea anchor for stability.

CAUTION

DO NOT deploy the sea anchor if traveling though coral. Coral could cut, damage, or snag the anchor line.

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Inventory and review the operating instructions of all communications and signaling equipment.

1. Radio Communications (Voice and Data)

a. If in a combat situation, perform the following:

(1) Operate personal locator beacon (PLB)/emergency locator transmitter (ELT) IAW communications plan/SOP.

(2) Ensure the PLB is registered.

(3) Use cell phones for communications.

(4) Keep the beacon with you to supplement radio communications.

(5) Follow recovery instructions in evasion plan of action (EPA) for on/off operations.

b. Make initial contact as soon as possible or as directed in communication plan.

c. If no immediate contact is made, attempt again, as directed in your communications plan.

d. Locate any potential spare radio and batteries (keep them warm and dry).

e. Perform transmissions in the following manner. (See figure 17 for radio transmission characteristics.)

(1) Use concealment sites that optimize the line of site.

(2) Face the recovery asset.

(3) Keep the antenna perpendicular to the intended receiver.

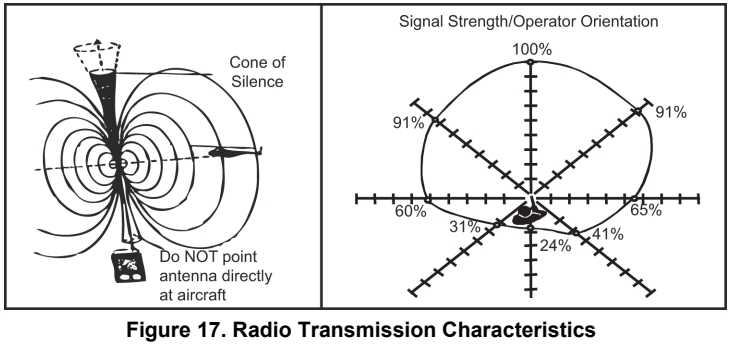


Figure 17. Radio Transmission Characteristics

(4) DO NOT ground the antenna by touching it to objects like a space blanket or vegetation, or the attaching bolt.

(5) Keep transmissions short (3 to 5 seconds) to avoid radio detection finding. Use data burst, if available.

(6) Face the equator, if transmitting in the blind.

(7) Use terrain masking and an ear piece accessory to hinder enemy direction finding.

(8) Do not use your radio at the same time for several days in a row.

f. When listening, use reception times in applicable plans/orders or as directed by recovery forces.

CAUTION

Conserve battery life. Turn the radio on IAW the communications plan. DO NOT leave the radio on continuously.

g. Consider the following field expedient antenna information.

(1) Vertical Half Rhombic and the Long Wire Antenna:

(a) The vertical half rhombic and long-wire antennas are field expedient directional antennas. The long-wire antenna directive pattern will radiate in horizontal and vertical planes and the vertical half rhombic antenna will radiate to the front and back of its sloping wires if resistors are not used.

(b) Figures 18 and 19 are examples of the vertical half rhombic and long-wire antennas, respectively. These antennas consist of a single wire, preferably two or more wavelengths long, supported on poles at a height of 3–7 meters (about 10–20 ft) above the ground. However, the antennas will operate satisfactorily as low as 1 meter (approximately 3.2 ft) above the ground.

(c) The far end of the wire is connected to a ground through a non-inductive resistor of 500–600 ohms. To ensure the resistor is not burned out by the output power of the transmitter, use a resistor rated at least one-half the wattage output of the transmitter. A reasonably good ground, such as a number of ground rods or a counterpoise, should be used at both ends of both types of antenna. The antennas are used primarily for transmitting or receiving HF signals.

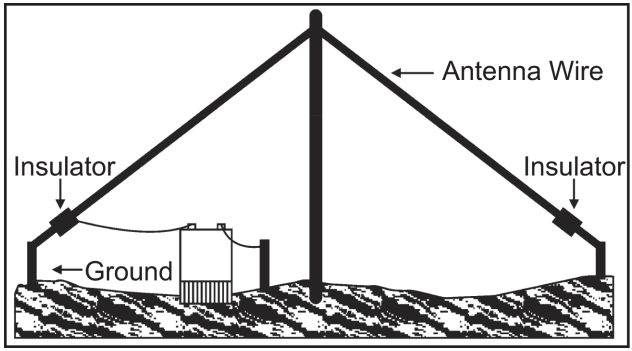


Figure 18. Vertical half rhombic antenna

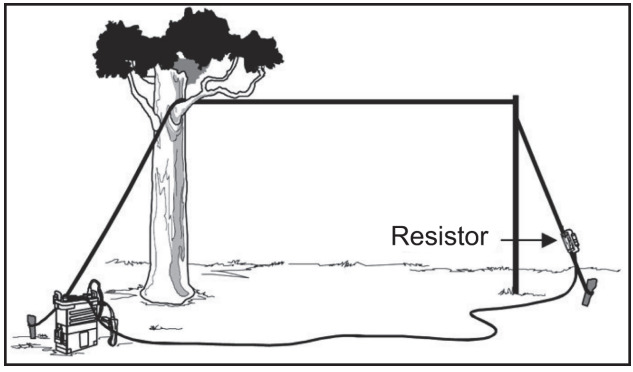


Figure 19. Long-wire antenna

(2) Sloping-V Antenna

(a) The sloping V antenna is another field expedient directional antenna. To make construction easy, the legs may slope downward from the apex of the "V". Figure 20 illustrates an example.

(b) To make the antenna radiate in only one direction, add non-inductive terminating resistors from the end of each leg (not at the apex) to ground. The resistors should be approximately 500 ohms and have a power rating at least one half that of the output power of the transmitter being used. Without the resistors, the antenna radiates bi-directionally, both front and back. A balanced transmission line must feed the antenna.

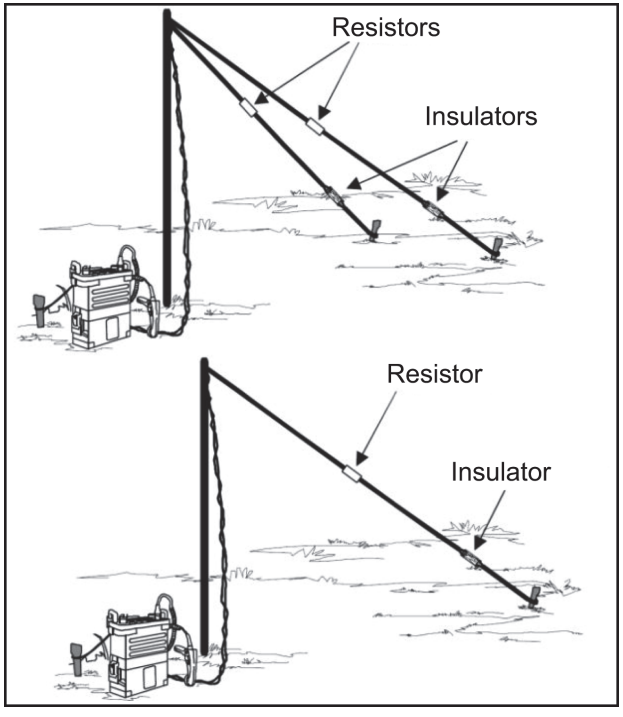


Figure 20. Sloping-V antenna

2. Signaling

a. Pyrotechnic signals:

(1) Prepare early (weather permitting).

(2) Use as directed in applicable orders or by recovery forces.

(3) If in a raft, extend downwind over the raft's edge before activating. DO NOT place back into raft until fully extinguished.

(4) In the absence of pyrotechnics, use tracer rounds or pen flares.

CAUTION
Tracer rounds and pen flares may be confused with enemy fire.

b. Strobe/infrared lights:

(1) Prepare early, consider filters and shields.

(a) Use as directed by recovery forces.

(b) Conserve battery life.

Note: May produce one residual flash when turned off. Practice light discipline.

c. Signal mirror (additional directions are on the back of the survival mirror):

(1) Use as directed by recovery forces.

(2) If you have no radio, use the signal mirror only with confirmed friendly forces.

(3) Cover it when not in use.

(4) Improvise with shiny metal, glass, ice, or other reflective objects. See figure 21 for aiming techniques for mirrors.

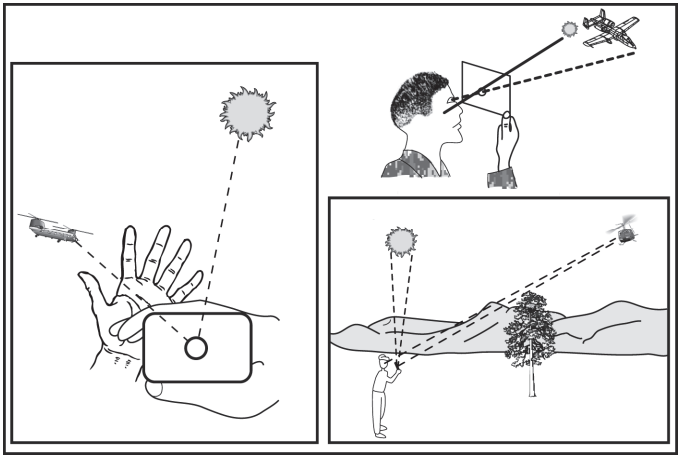


Figure 21. Improvised Mirror Aiming Techniques

d. Ground to air signals (GTAS) (use as directed; should be part of the individual's EPA).

(1) Materials:

(a) Man-made (space blanket, parachute, VS-17/air panel).

(b) Natural. Use materials that contrast the color and/or texture of the signaling area (e.g., rocks, brush, branches, stomped grass).

(2) Location:

(a) Maximize visibility from above.

(b) Provide concealment from ground observation.

(3) Size and ratio (as large as possible – see figure 22).

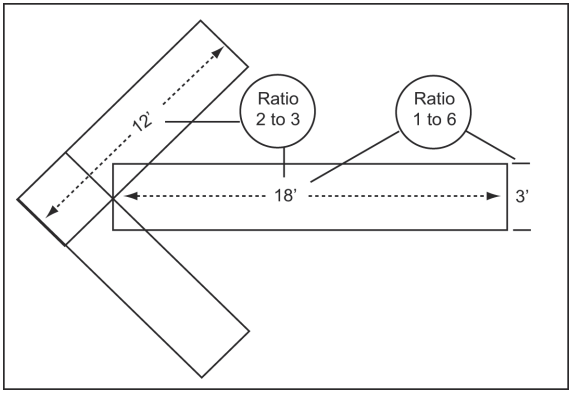


Figure 22. Size and Ratio

(4) Shape (maintain straight lines and sharp corners).

(5) Colors (use contrasting colors).

(6) Height (use height to create shadows).

(7) Pattern signals (IAW communication plan (see table 2)).

Table 2. Pattern Signals

Number	Message	Code Symbol
1	Require assistance.	V
2	Require medical assistance.	X
3	No or negative.	N
4	Yes or affirmative.	Y
5	Proceed in this direction.	↑

e. Sea dye marker.

(1) Dye dissipates quickly in rough seas or fast moving water.

(a) Sea dye is limited, use when recovery is likely.

(b) Conserve unused dye by rewrapping.

(c) May be used to color snow.

f. Non-combat considerations:

(1) Use a fire at night.

(2) Use smoke during the day (tires or petroleum products for dark smoke and green vegetation for light smoke).

(3) Use a signal mirror to sweep the horizon.

(4) Use audio signals (i.e., voice, whistle, and weapons fire).
(5) Use the internationally recognized signal for distress which is a series of three (gunshots, lights, fires).

NOTES

Chapter IV
RECOVERY

Your efforts are essential to the success of your recovery.

1. Responsibilities

a. Prepare well ahead for any form of recovery.

b. Construct an EPA/contingency plan. All missions require an EPA or contingency plan.

(1) You should enter EPA into personnel recovery mission software (PRMS).

(2) Army commanders may use isolated Soldier guidance (ISG) in place of an EPA.

c. Consider all potential actions before execution.

d. Weigh potential cost-benefit of movement.

e. Weigh tactical/peacetime situation versus survival needs.

f. Follow EPA/contingency plan to the best of your ability.

g. Upon contact with recovery forces, follow instructions explicitly.

h. Be prepared to authenticate via ISOPREP/SPINS.

2. Initial Actions

a. Execute initial call IAW EPA/contingency plans.

b. Identify self use call-sign (e.g., “Mayday, Mayday, Mayday – any station/aircraft, this is Wargang 65”).

c. Be prepared to provide your position using appropriate codes listed in the EPA/contingency plan (i.e., search and rescue numerical encryption grid (SARNEG), SPINS, or other communication plan.

d. Recovery operations will require authentication from the evader’s ISOPREP. Minimizing transmission length is important.

e. Retain/destroy classified material, as required.

Note: If communication cannot be made, re-enable ELT/beacon IAW with the communications plan in the EPA.

f. Inventory and retain all survival/recovery equipment until directed otherwise.

g. Follow the contingency plan and move to an appropriate recovery location.

h. Non-combat information can be provided in the clear. It includes the following:

(1) Your call-sign, location, and the nature of the emergency.

(2) The number of persons on board.

(3) The medical status of each person.

3. Actions on the Ground/in the Water

a. Organize and prepare communications and signaling devices.

b. Follow/establish a communication plan (except in the case of opportune communication).

c. Conduct a head count.

4. Site Selection

a. The recovery area should be away from tall trees, loose debris, tall buildings, wires, towers or in areas conducive to sniper fire. Recovery could be by a rotary winged asset, wheeled vehicle or recovery team on foot.

b. Locate an area for a helicopter landing/pick-up zone, if practical. (It must be a minimum 150 feet in diameter, free of obstructions, flat, and level).

c. Assess evidence of human activity at/near site.

d. Locate several concealment sites around the area.

e. Plan several tactical entry and exit routes.

f. Place/observe the prescribed visual signal.

g. Locate key terrain features for quick navigation or to assist recovery forces in finding your location.

h. Consider other survival needs (i.e., food, water).

5. Prepare for Recovery

a. Ensure equipment is packed and secure at all times.

b. Be prepared to move.

c. Prepare signaling devices (use as directed or as briefed).

d. Review recovery methods (such as aircraft, ground, or boat).

6. Communicate with the Recovery Force

a. Initiate contact.

Note: Once contact is made, follow recovery force directions.

b. Be prepared to:

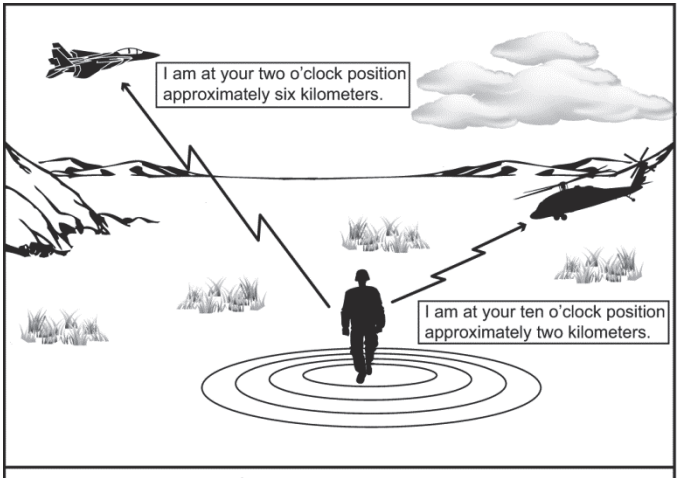
(1) Authenticate.

(2) Provide/update threat information.

(3) Provide medical condition.

(4) Describe location/key terrain features.

(5) Vector recovery platform to your location (see figure 23).


I am at your two o'clock position approximately six kilometers.
I am at your ten o'clock position approximately two kilometers.

1. Attempt to contact aircraft and establish two-way communication.
2. Relay your position relative to the direction of flight of the aircraft using the clock method (12 o'clock position is the nose of the aircraft).
3. Include estimated distance.
4. When aircraft turns toward your position, make adjustments using the "turn left/right, stop turn" (keep in mind left and right will be reversed for the pilot). Use a long or short count (e.g., "You will be over my position in 10, 9, 8, 7...mark.").

Note: This method can be used to vector watercraft and ground vehicles.

Figure 23. Aircraft Vectoring

7. General Principles of Recovery

a. Identify your position as directed by recovery forces.

b. Stay concealed until recovery is imminent.

c. Secure weapons and avoid quick movements.

d. Assume non-threatening posture.

e. DO NOT approach recovery personnel/platform until instructed.

CAUTION

Beware of rotors/propellers when approaching the recovery vehicle, especially on sloping or uneven terrain.

f. Secure loose equipment that could get caught in rotors/propellers.

g. Use eye protection (glasses or helmet visor) if available.

8. Rescue Devices

a. Hoist recovery. Figure 24 shows a rescue strap and figure 25 shows a forest penetrator.

CAUTION

Allow metal on the recovery device to contact a surface before touching it to avoid injury from a static discharge.

(1) Sit or kneel for stability while donning the recovery device.

(2) Put the rescue strap under your armpits prior to using the forest penetrator.

CAUTION

Maintain awareness of the cable's location. Ensure the cable does not become entangled.

(3) Keep hands clear of all hardware and connectors.

(4) Use a vigorous thumbs up at an angle, vigorous cable shakes, or radio call to signal when you are ready.

(5) Drag your feet on the ground to decrease oscillation. DO NOT cross your legs; keep feet and knees together.

Note: DO NOT assist during hoist or when pulled into rescue aircraft. Follow crewmember instructions.

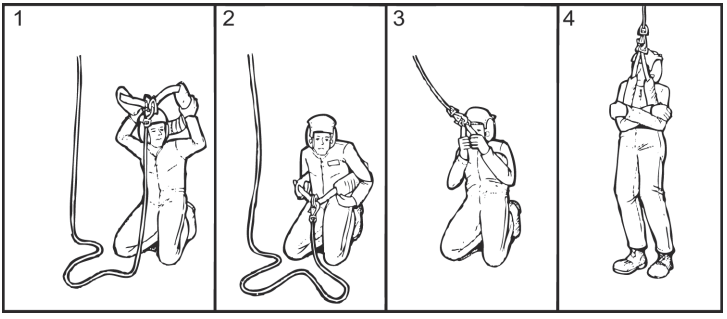


Figure 24. Rescue Strap

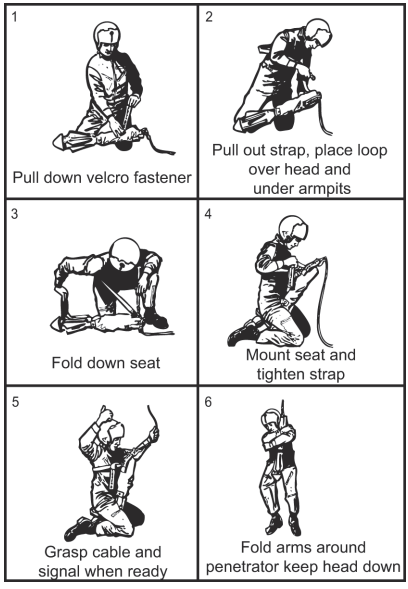


Figure 25. Forest Penetrator

b. No-hoist recovery (rope or unfamiliar equipment).

(1) Create a “fixed loop” big enough to place under armpits keeping knot in front (figure 26).

(2) Be prepared to secure yourself to the recovery device by any means.

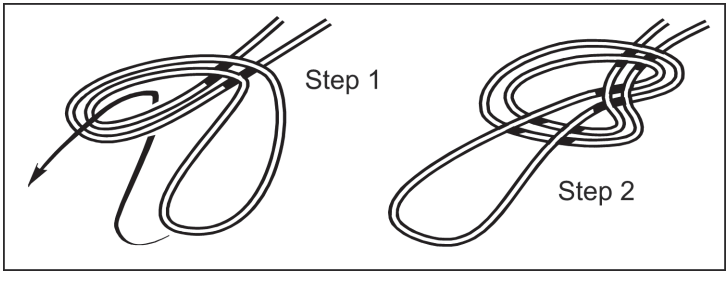


Figure 26. Fixed Loop

c. Water recovery – helicopter.

(1) Follow procedures for the standard hoist shown in figure 26.

(2) Take down the canopy and secure all loose equipment (in the raft, in the accessory bag, or on your person) prior to recovery. REMAIN IN THE RAFT!

(3) Deploy the sea anchor and accessory kit.

(4) Add enough water to replace body weight to prevent the raft from getting lifted into rotors.

(5) Secure yourself to the raft until the recovery device is in hand.

d. Water recovery – surface vessel.

(1) Pull in the sea anchor, accessory kit, or lines to prevent entanglement.

(2) Stay in the raft until directed otherwise.

9. Unassisted Recovery

a. Be MENTALLY and PHYSICALLY ready to conduct YOUR OWN recovery. Staying alive and free until link-up with friendly forces may take a few days, a week, or longer. An unassisted evader must perform the following evasively to avoid detection and leaving evidence of passage:

(1) Treat injuries, avoid new injury, and maintain health.

(2) Maintain body temperature by appropriately using clothing, locating or building concealed shelter, and getting sleep or rest.

(3) Obtain, prepare, and use sufficient water and food.

b. Be prepared to facilitate your own recovery by linking up with friendly forces in your area of operations.

(1) Use your knowledge of the area and current operations to aid your movement.

(a) Follow your EPA/contingency plan.

(b) Use signals at your disposal throughout your evasion, IAW instructions and/or EPA. Random use of signals outside of the instructions or EPA can result in delayed recovery, fratricide or the enemy getting to the evader first and establishing an ambush of the recovery force.

(c) Maintain a force protection and tactical mindset.

(d) Use caution nearing friendly lines to reduce fratricide.

(e) Use standard link-up procedures, if known.

Chapter V
SURVIVAL MEDICINE

1. Medical Considerations for High-Threat Survival and Evasion Situations

Note: The following actions are to be taken when the risk of death or further injury from enemy engagement outweighs attempting additional medical interventions.

WARNING

Arterial bleeding can be life threatening within minutes. Move to cover, stop the bleeding, if tactically feasible, using a tourniquet, if anatomically amendable to a tourniquet application.

a. Take cover.

b. Direct others (casualties) to move to cover and apply self-aid if able.

c. Avoid sustaining additional wounds.

d. Stop life-threatening external hemorrhage:

(1) Use a tourniquet (figure 27) for hemorrhage that is anatomically amenable to tourniquet application. Various materials can be used to create an improvised tourniquet if necessary (figure 28).

(2) Apply the tourniquet proximal (as high on the limb as practical) to the bleeding site, over the uniform, tighten, and move to cover.

e. Move to a safe area as soon as tactically feasible.

f. Within the first four hours only, if the tactical situation allows, reassess the tourniquet to determine if it should be replaced with a direct pressure dressing.

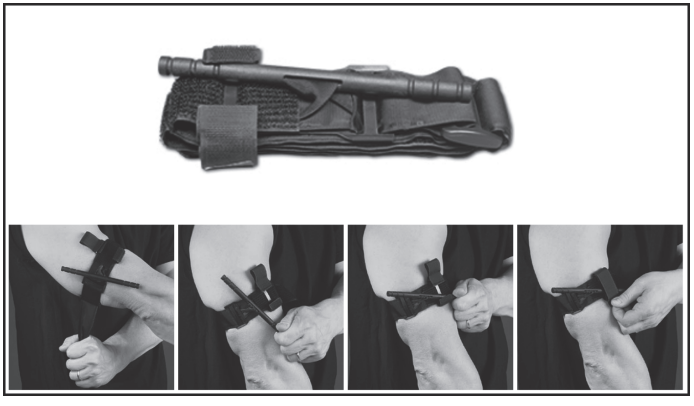


Figure 27. Tourniquet

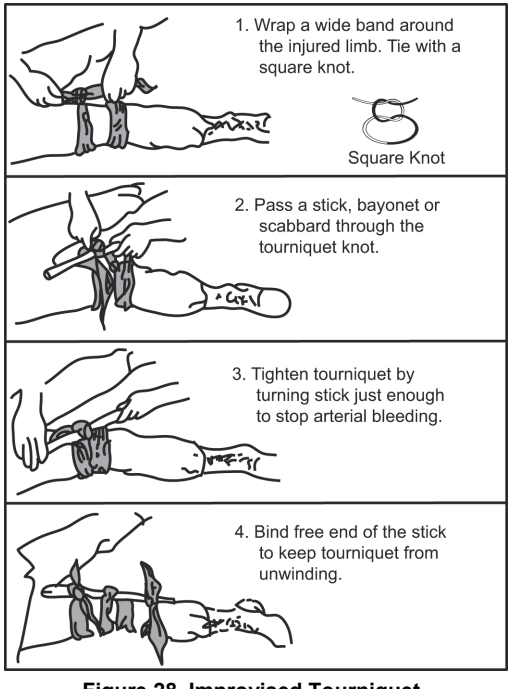

1. Wrap a wide band around the injured limb. Tie with a square knot.
Square Knot
2. Pass a stick, bayonet or scabbard through the tourniquet knot.
3. Tighten tourniquet by turning stick just enough to stop arterial bleeding.
4. Bind free end of the stick to keep tourniquet from unwinding.

Figure 28. Improvised Tourniquet

CAUTION

When the injury is located on the lower arm or leg, the tourniquet is applied above the elbow or knee, respectively.

2. Tactical Medicine for Reduced-Threat Survival and Evasion Scenarios

Note: The following actions are to be taken while waiting for recovery and when the risk of enemy engagement is reduced. The assumption is made that individuals will have basic medical training and resources such as an Individual First Aid Kit (IFAK) to use during the initial stages of isolation.

a. Disarm casualties with an altered mental status immediately.

b. Determine responsiveness of a casualty.

(1) If unconscious, attempt to awaken him or her by gently shaking and talking to the victim.

(2) If non-responsive, roll the victim on his or her back (if needed), keep the head and neck aligned, and open the airway (figure 29).

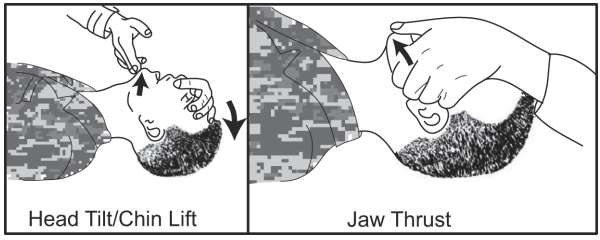


Figure 29. Open Airway

(3) Assess breathing: Look, listen, and feel for air exchange (3 to 5 seconds).

(4) If not breathing, determine mechanism of injury and if cardio-pulmonary resuscitation (CPR) (see steps below) is warranted.

(a) Check to see if the airway is clear; remove any blockage. EXTREME care must be taken when clearing someone's airway so the obstruction is not lodged further into victim's airway.

(b) Cover the victim's mouth with your own.

(c) Pinch victim's nostrils closed.

(d) Fill the victim's lungs with two slow breaths that last 1 to 1.5 seconds.

(e) If the breaths are blocked, reposition airway and try again.

(f) If the victim is still not breathing, he/she is beyond the scope of care.

(5) On the battlefield, resuscitation will not be successful and should not be attempted for victims of blast or penetrating trauma with no pulse, no respirations, and no other signs of life.

(6) In the event of electric shock, drowning, or hypothermia, CPR should be attempted, but continued efforts to resuscitate must be weighed against logistical and tactical considerations and the risk of incurring further casualties.

c. Airway Management

(1) Unconscious casualty without an airway obstruction:

(a) Use the Chin lift or jaw thrust maneuver.

(b) Breathe through the nasopharyngeal airway.

(c) Place the casualty on his or her side, in the recovery position

(2) Casualty with airway obstruction or impending airway obstruction:

(a) Use the chin lift or jaw thrust maneuver.

(b) Breathe through the nasopharyngeal airway.

(c) Allow the casualty to assume any position that best protects the airway, to include sitting up.

(d) Place unconscious casualty in the recovery position.

Note: If spinal injuries are suspected, use the jaw thrust method.

d. Breathing

(1) In a casualty with progressive respiratory distress and known or suspected torso trauma, consider a tension pneumothorax.

(a) Tension pneumothorax is characterized by rapid breathing, cyanosis, falling blood pressure (hypotension) and confusion. The affected side of the chest may be hyperexpanded and show decreased movement, with increased movement on the other side. In very severe cases, the respiratory rate falls sharply, with shock and coma.

(b) Decompress the chest on the side of the injury with a 14-gauge, 3.25 inch needle/catheter unit inserted in the second intercostal space at the midclavicular line. Ensure that the needle entry into the chest is not medial to the nipple line and is not directed towards the heart.

(2) All open and/or sucking chest wounds should be treated by immediately applying an occlusive material to cover the defect and securing it in place. Monitor the casualty for the potential development of a subsequent tension pneumothorax.

e. Bleeding

(1) Assess the victim for unrecognized hemorrhage (brain hemorrhage, burst blood vessel, internal bleeding, etc) and control all sources of bleeding. If not already done, use a tourniquet to control a life-threatening external hemorrhage that is anatomically amenable to tourniquet application or for any traumatic amputation. Apply the tourniquet directly to the skin 2-3 inches above the wound. Non-life threatening bleeding can be managed by conventional means (e.g., direct pressure, pressure dressings, etc.).

(2) For compressible hemorrhage not amenable to tourniquet use, use Combat Gauze as the hemostatic, or blood clotting, agent of choice (Direct pressure, tourniquets, and surgical clamps are mechanical hemostatic measures). Combat Gauze should be applied with at least 3 minutes of direct pressure. Before releasing any tourniquet on a casualty who has been resuscitated for hemorrhagic shock (see Shock below), ensure there is a positive response to resuscitation efforts (i.e., a peripheral pulse is normal if there is no traumatic brain injury (TBI).

(3) Reassess prior tourniquet application. Expose the wound and determine if a tourniquet is still needed. If so, re-apply directly to skin 2-3 inches above wound. If a tourniquet is not needed, use other techniques to control bleeding.

(4) When time and the tactical situation permit, perform a distal pulse check. The distal pulse is located is further along the joints or extremities, or the heart. If a distal pulse is still present, consider additional tightening of the tourniquet or use a second tourniquet, parallel and proximal to the first, to eliminate the distal pulse.

(5) Expose and clearly mark all tourniquet sites with the time of tourniquet application. Use an indelible marker.

f. Shock

(1) Assess for shock. An altered mental state (in the absence of head injury) and weak or absent peripheral pulses are the best field indicators of shock.

(a) Hemorrhagic shock is shock associated with the sudden and rapid loss of significant amounts of blood. Severe traumatic injuries often cause such blood losses.

(b) Death occurs within a relatively short time unless transfusion quickly restores normal blood volume

(2) Treat underlying cause(s)

(3) Give fluids by mouth if the victim is conscious and can swallow.

g. Prevent Hypothermia

(1) Minimize the casualty's exposure to the elements. Keep protective gear on or with the casualty, if feasible.

(2) Replace wet clothing with dry, if possible.

(3) Cover the casualty with a rescue blanket if one is available

(4) Apply additional interventions (e.g., dry blankets, poncho liners, sleeping bags, body bags, etc.) as needed.

h. Penetrating Eye Trauma. If a penetrating eye injury is noted or suspected, cover the eye with a rigid eye shield (NOT a pressure patch.) and ensure that the 400 mg moxifloxacin tablet in the combat pill pack is taken, if possible.

i. Administer a combat pill pack. These medications should be carried by the combatant and self-administered as soon as possible after any wound is sustained. The pack includes the following medicines and should be taken in the listed dosages.

(1) Mobic, 15 mg, one

(2) Tylenol, 650-mg caplets, two

(3) Moxifloxacin, 400 mg, one

j. Treat chest injuries.

(1) Sucking chest wound. This occurs when chest wall is penetrated. This type of injury may create a sucking sound and cause the victim to gasp for breath. It also may create a bloody froth as air escapes the chest.

(a) Expose the wound and immediately seal it with airtight material (e.g., a candy wrapper, plastic bag, bandage wrapper, etc.).

(b) Monitor breathing and check the dressing.

(c) If the victim has trouble breathing, lift a side of the dressing to allow trapped air to escape and immediately reseal it.

(d) Position the casualty on his or her injured side or in a sitting position, whichever makes breathing easier.

(2) Fractured ribs:

(a) Stabilize as follows:

- Place rolled-up clothing or bulky pad over the site.
- Tape the pad to the site.

(b) Pain management is critical to allow the victim to take the deepest breathes possible. Use Acetaminophen and Meloxican from combat pill pack.

(c) Only dress and tape OPEN wounds.

(d) DO NOT constrict breathing by taping ribs too tightly.

k. Fractures, sprains, and dislocations.

(1) Remove watches, jewelry, and constrictive clothing.

(2) If a fracture penetrates the skin, apply a dressing over the wound.

(3) Position the limb as normally and naturally as possible.

(4) If there is no pulse below the break, attempt to straighten the limb to restore circulation.

(5) If unable to straighten limb, splint it in the position in which it was found.

(6) Improvise a splint with available materials such as:

(a) Sticks or straight, stiff materials from your or someone else's equipment.

(b) Body parts (i.e., secure to opposite leg or arm to chest).

(7) Attach the tourniquet with strips of cloth at least 2 inches wide.

(8) Keep fractured bones from moving by immobilizing joints above and below fracture.

(9) If the fracture is in a joint, immobilize bones above and below the fracture.

(10) When resting, elevate the injured area above heart level to reduce swelling. Periodically check for a pulse and signs of circulation below

the injury site. Loosen the bandage or reapply the splint if no pulse is felt or if swelling occurs because the bandage is too tight.

l. Inspect and dress all known wounds and check for additional wounds.

m. Communicate with the casualty, if possible. Encourage, reassure and explain care.

3. Common Injuries and Illnesses

a. Burns:

(1) Flush burned skin to remove any chemicals and irritants.

(2) Cool the burned area with water.

(a) Use immersion or cool compresses.

(b) Avoid aggressive cooling with ice or frigid water.

(3) Remove jewelry and constrictive clothing.

(4) Cover the area with dry sterile dressings.

(5) DO NOT use lotion or grease on the burn.

(6) Drink extra water to compensate for increased fluid loss from burns.

Note: Add SARALITE or ¼ teaspoon salt and ¼ teaspoon sugar (if available) to each quart of drinking water.

(7) Change dressings when soaked or dirty.

b. Eye injuries.

(1) Sun/snow blindness (gritty, burning sensation, and possible reduction in vision caused by sun exposure):

(a) Prevent with improvised goggles (see chapter VI, figure 33).

(b) Treat by covering affected eye(s) with a cool compress.

(2) Foreign object in eye.

(a) Irrigate with clean water from inside to outside corner of eye.

(b) If foreign object is not removed by irrigation, improvise a small swab. Moisten the swab and wipe it gently over affected area.

(c) If there is a foreign object in the eye, both eyes should be bandaged.

Note: Continue to use issued eye protection even following an eye injury.

c. Heat injury.

(1) At the onset of symptoms (i.e., weakness, dizziness, cramps etc.) stop all activity, get in the shade and drink water. If symptoms continue (i.e., severe headache, nausea, confusion, convulsions), cool the victim as rapidly as possible. Have the person lie on a stretcher or similar item about 18 inches off the ground to enhance cooling. Elevate his/her feet, loosen clothing, douse with water and fan him/her.

(2) Heat cramps (cramps in legs or abdomen):

(a) Rest in a cool or shady area.

(b) Slowly sip one quart of water. Add ¼ teaspoon of salt per quart.

(3) Heat exhaustion (pale, sweating, moist, cool skin):

(a) Rest in a cool or shady area.

(b) Slowly sip one quart of water.

(c) Protect self (or victim) from further heat exposure.

(4) Heat stroke (the victim is disoriented or unconscious, skin is hot and flushed [sweating may or may not occur], pulse is fast):

(a) Cool as rapidly as possible (saturate clothing with water and fan the victim).

(b) Cool groin and armpit areas.

(c) Pour water on head and back of neck; but avoid overcooling.

(d) Ensure the victim's airway is open and he/she is breathing and blood is circulating.

d. Cold injuries.

(1) Frostbite:

(a) Signs and symptoms.

- Ears, nose, fingers, and toes are affected first.
- Areas will feel cold and may tingle, leading to numbness that progresses to a waxy appearance and stiff skin that is unable to glide freely over a joint.

(b) Re-warm areas with body heat.

Note: DO NOT re-warm deep (solid) frostbite.

(2) Hypothermia (fumble, mumble, stumble).

(a) It is a progressive injury. Symptoms include:

- Intense shivering.
- An altered mental state.
- Difficulty speaking.
- An impaired ability to perform complex tasks.
- Muscular rigidity with blue, puffy skin, and jerky movements.
- Coma, respiratory and cardiac failure.

(b) Protect the victim from further heat loss as follows:

- Replace wet clothing with dry clothing.
- Cover top of head and back of neck.
- Insulate him/her from above and below.

- Warm with blankets, sleeping bags, warm fluids, shelter, and other dry clothed bodies.
- Warm the body's core before warming extremities.
- Place heat packs on groin, armpits, and around neck.
- Avoid causing burns to skin during re-warming.
- Avoid aggressively moving the patient in advanced stages of hypothermia.

e. Skin tissue damage.

(1) Immersion injuries (skin becomes wrinkled):

(a) Limit walking when feet are affected.

(b) Pat dry; DO NOT rub. Skin tissue will be sensitive.

(c) Dry socks and shoes while keeping feet protected.

(d) Loosen clothing and boots to improve circulation.

(e) Keep the injured area dry, warm, and open to air.

(f) DO NOT apply creams or ointments.

(2) Saltwater sores:

(a) Change body positions frequently.

(b) Keep sores dry.

(c) Use an antiseptic (if available).

(d) DO NOT open or squeeze sores.

f. Snakebite:

(1) Treat all snakebites as poisonous.

(2) Remove jewelry, clothing, and other constricting items on the affected limb.

(3) Minimize activity and limit movement to prevent the spread of venom.

(4) DO NOT cut the bite site; and DO NOT use your mouth to create suction.

(5) Clean the bite with soap and water and cover it with a dressing.

(6) Splint the bitten extremity to prevent motion (constantly check for circulation and swelling).

(7) Treat for shock.

(8) For a conscious victim, force fluids.

g. Marine Life.

(1) Stings:

(a) Flush wounds with salt water (fresh water stimulates toxin release).

(b) Urine may be used to flush wounds in a survival situation.

(c) Remove jewelry and constrictive clothing.

(d) Remove tentacles, where applicable, and gently scrape or shave the affected skin.

(e) DO NOT rub the area with sand.

(f) Treat for shock.

(2) Punctures:

(a) Clean the wound.

(b) Cover it with clean dressing.

(c) Treat for shock as needed.

h. Skin irritants (including poison oak and poison ivy):

(1) Wash with large amounts of water. Use soap if available.

(2) Keep covered to prevent scratching.

i. Infection.

(1) Keep the wound clean.

(2) Change bandages as needed.

j. Dysentery and diarrhea:

(1) Drink extra water.

(2) Eat black charcoal. Make a paste by mixing water with fine charcoal particles from a fire. It may relieve symptoms by absorbing toxins.

k. Constipation (common/expected in survival situations). Drink extra water.

4. Plant Medicine

a. Tannin.

(1) Medical uses. A tannin solution prevents infection and aids healing. Use it to treat burns and skin problems.

(2) Sources. Tannin is found in outer bark of acorn and oak trees, banana plants, common plantains (see figure 30), strawberry leaves, and blackberry stems.

(3) Preparation (to brew tannin tea):

(a) Place crushed outer bark, acorns, or leaves in water.

(b) Leach out tannin by soaking or boiling until the water is black.

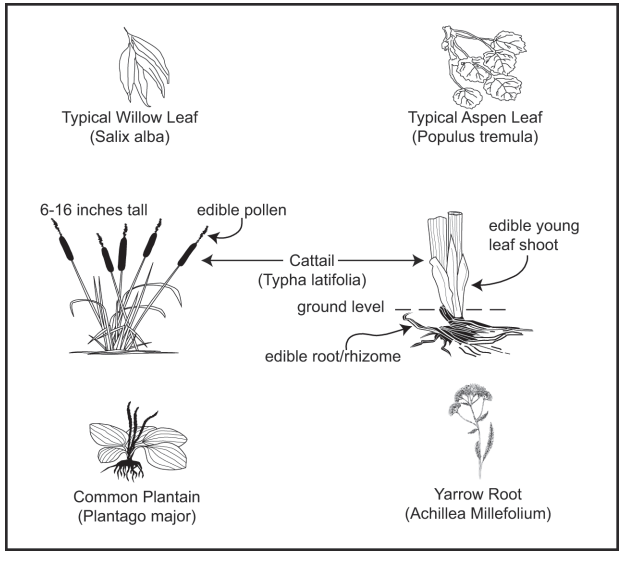


Figure 30. Useful Plants

- Increase tannin content with a longer soaking or boiling time.
- Replace depleted material with fresh bark/plants.

(4) Treatments.

(a) Burns:

- Moisten burn bandages with cooled tannin tea.
- Apply a compress to a burned area.
- Pour cooled tea on burned areas to ease pain.

(b) Diarrhea, dysentery, and worms. (This is not recommended, but may be necessary.) Drink strong tea solution. (No more than 6 ounces – 1/3 of a canteen cup, you may feel sick for a day or two but the parasites will be sicker and leave your body. Re-dose in 6 weeks, if needed.)

(c) Skin problems (dry rashes/fungal infections). Apply cool compresses or soak affected part to relieve itching and promote healing.

(d) Lice and insect bites. Wash affected areas with tea to ease itching.

b. Salicin/salicylic acid.

(1) Medical uses. Salicin/salicylic acid has aspirin-like qualities. Use it to treat colds, sore throat, fever, inflammation, aches, pain, and sprains.

(2) Sources. Willow (*Salix alba*) and aspen (*Populus tremula*) trees (see figure 30).

(3) Preparation:

(a) Gather willow or aspen twigs, buds, or cambium layer (soft, moist layer between the outer bark and the wood).

(b) Brew tea following the method as described in tannin paragraph (a.(3)).

(c) Make a poultice by crushing a plant or stems into a pulpy mass.

(4) Treatments:

(a) Chew on twigs, buds, or cambium for symptom relief.

(b) Drink tea for colds and sore throat.

(c) Use a warm, moist poultice for aches and sprains.

- Apply pulpy mass over injury.
- Hold in place with dressing.

c. Yarrow plant root (Achillea Millefolium) (see figure 30).

(1) Uses:

(a) Pain killer:

- This short, purple new-growth root should be washed, crushed and placed on small, open wounds or placed directly on a broken tooth. It will numb the area.
- Boil leaves to make a tea. Drink the tea to relieve pain and discomfort of stomach ulcers.

(b) Antiseptic: Leaves crushed into a poultice and bandaged in place on an open wound retards bacterial growth and reduces the chance of infection.

(c) Insect repellant: Crush leaves and rub them on to exposed skin and hair to repel flying insects for 2-3 hours depending, on the degree of evader action or sweating. Place crushed leaves in undershorts, T-shirts, tops of socks or bedding to repel crawling insects (e.g., fleas, ticks, lice, chiggers, etc.).

d. Common plantain (*Plantago major*).

(1) Medical uses. Use to treat itching, wounds, abrasions, stings, diarrhea, and dysentery.

(2) Source. The common plantain (shown in figure 30) is *Platago major* and is common in North America.

(3) Preparation:
(a) Brew teas from seeds and leaves.
(b) Make a poultice of leaves.
(4) Treatments:
(a) Drink tea made from seeds to combat diarrhea or dysentery.
(b) Drink tea made from leaves for vitamins and minerals.
(c) Use a poultice to treat cuts, sores, burns, and stings.

e. Common cattail (*Typha latifolia*).
(1) Medical uses. Wounds, sores, boils, inflammation, burns, and an excellent food source.
(2) Source. Cattail plants are found in marshes (see figure 30).
(3) Preparation:
(a) Pound roots into pulpy mass for a poultice.
(b) Cook and eat green bloom spikes.
(c) Collect yellow pollen for a flour substitute.
(d) Peel and eat tender shoots (raw or cooked).
(4) Treatments.
(a) Apply a poultice to injured area.

5. Health and Hygiene

a. Stay clean (daily routine).
b. Prevent and control parasites:
(1) Check your body regularly for lice, fleas, ticks, leeches, or other parasites. Pick off insects and eggs; DO NOT crush.
(2) Wash clothing and use repellents.
(3) Use smoke to fumigate clothing and equipment.

6. Rules for Avoiding Illness

a. Purify all water.
b. Avoid contaminating your water source with human waste.
c. Wash your hands before preparing food or water.
d. Clean all eating utensils after each meal.
e. Prevent insect bites by using repellent, netting, and clothing.
f. Dry wet clothing as soon as possible.
g. Eat to maintain health.
h. Rest.

NOTES

Chapter VI
PERSONAL PROTECTION

1. Care and Use of Clothing/Personal Protection Equipment

a. Never discard clothing or personal protection equipment.

b. Use the acronym 'COLDER' as a general guideline:

C	keep clothing CLEAN
O	avoid OVERHEATING
L	wear clothing LOOSE and in LAYERS
D	keep clothing DRY
E	EXAMINE clothing for defects or wear
R	keep clothing REPAIRED

c. Wear loose and layered clothing.

(1) Tight clothing restricts blood flow thereby reducing circulation and invites cold injury It also decreases the volume of air trapped between the layers, reducing its insulating value.

(2) Several layers of lightweight clothing are better than one equally thick layer of clothing, because the layers have dead-air space between them. The dead-air space provides extra insulation.

(3) Layers of clothing allow you to take off or add clothing layers to prevent excessive sweating or to increase warmth.

d. In hot climates, keep the entire body covered to prevent sunburn/dehydration.

e. When fully clothed, most body heat escapes through the head and neck.

f. Avoid overheating and sweating.

(1) Remove layers of clothing before strenuous activities.

(2) Wear a hat when in direct sunlight (in hot environment).

g. Keep clothing dry to maintain insulation qualities (dry clothing in the sun or by a fire).

Note: It is acceptable to use salt water (non drinking water) to dampen clothing to cool the body down.

h. If you fall into water in winter conditions:

(1) Remove wet clothing and re-warm by a fire.

(2) Finish drying clothing by a fire before putting it back on.

i. If no fire is available:

(1) Remove wet clothing and utilize any other means of personal protection.

(2) Allow wet clothes to freeze, and then break ice out of clothing.

(3) Keep moving.

j. Keep clothing clean (dirt reduces insulation qualities).

k. Examine clothing frequently for damage.

l. Maintain a layer of insulation between body and the ground.

m. Wash clothing and repair it when possible.

n. See Figure 31 as to how the body loses heat due to conditions.

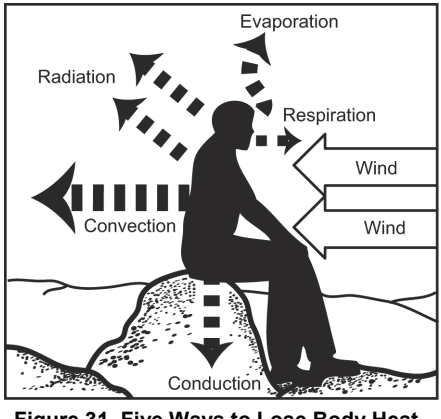


Figure 31. Five Ways to Lose Body Heat

2. Improvised Personal Protection Equipment

a. Improvised foot protection for hiding the foot signature is illustrated in figure 32.

(1) Cut two to four layers of cloth into a 30 inch squares.

(2) Fold it into a triangle.

(3) Center one foot on a triangle with toes toward a corner.

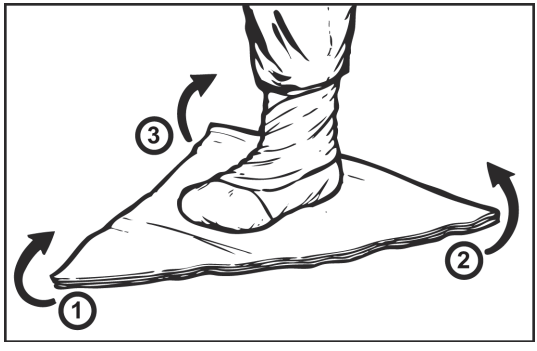


Figure 32. Improvised Foot Wear

(4) Fold front over toes.

(5) Fold side corners, one at a time, over your instep.

(6) Secure or tuck into other layers of material.

Note: Variation: Field expedient insulated foot gear can be improvised using sand bags. Place dry grass, leaves, dry moss, cardboard, crumpled newspaper or rags in the bottom of one bag and insert one foot or dry booted foot. Stuff additional dry material around the foot and leg. Tie a string around the leg to secure excess loose sand bag material. Then repeat the procedure with the other foot. A similar technique can be used to improve insulation by adding the same materials between layers of clothing in cold weather.

b. Sun and snow goggles (figure 33).

(1) Wear in bright sun or snow conditions.

(2) They can be improvised by cutting small horizontal slits in webbing, bark, or the back page of this publication.

Figure 33. Sun and Snow Goggles

c. Gaiters (figure 34). These are used to protect feet and legs from sand, snow, insects, and scratches. Wrap material around the lower leg and top of boots.

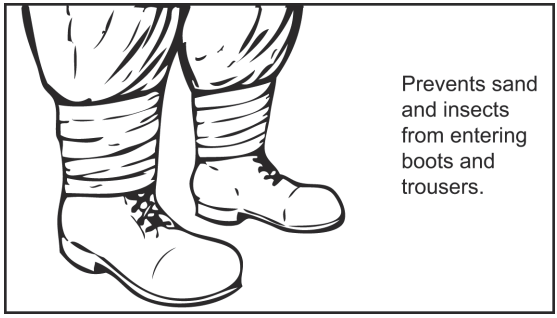


Figure 34. Gaiters

3. Other Protective Equipment

a. Sleeping bag.

(1) Fluff before use, especially at foot of bag.

(2) Air and dry daily to remove body moisture.

(3) Improvise with available material (i.e., dry grass, leaves, dry moss).

4. Shelters (See Appendix C, Table 9)

a. Evasion hide site considerations apply (see chapter 1).

b. Site selection.

(1) Near signal and recovery site.

(2) Near available food and water.

(3) Avoid natural hazards (i.e., dead standing trees, drainage and dry river beds, avalanche areas).

(4) A location large and level enough in which to lie down.

c. Construct shelters using natural and man-made materials at hand (i.e., raft vehicle/aircraft parts, parachute, sheet of plastic, bark, sod, sand, snow, and broad leaves).

d. Types.

(1) Immediate shelter. Find one needing minimal improvements (figure 35).

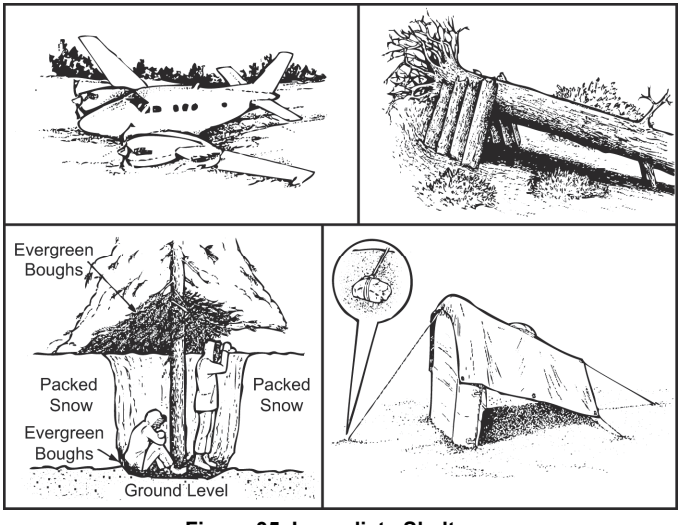


Figure 35. Immediate Shelters

Note: The metal skin of an aircraft will act as a heat exchanger in very cold weather making the interior of the aircraft as cold as, or colder than the outside air.

CAUTION

A newly downed aircraft will draw the attention of the enemy and local population. Therefore, it will not make a good hide site.

(2) General shelter. Temperate climates require shelter that protects from wind and rain.

(3) Thermal A-frame, snow trench, snow cave (figures 36-39). The following are observations about cold-weather shelters.

(a) Cold climates require an enclosed, insulated shelter.

(b) Try to dig down to the earth's surface to utilize radiant heat.

(c) Snow is the most abundant insulating material.

(d) An air vent is required to prevent carbon monoxide poisoning when using an open flame inside enclosed shelters.

(e) Creating elevated platforms allows cold air to gather away from the work and sleeping area, which will retain the warmest air.

Note: As a general rule, unless you can see your breath, your snow shelter is too warm and should be cooled down to preclude melting and dripping.

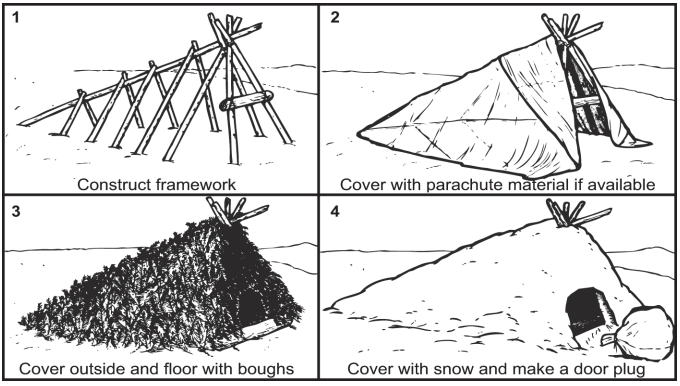


Figure 36. Thermal A-Frame

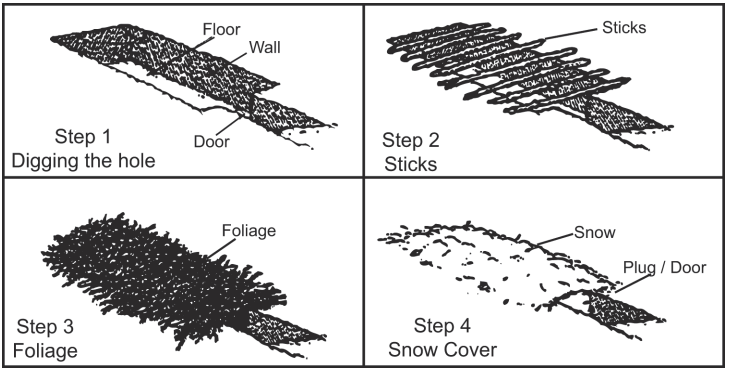


Figure 37. Snow Trench

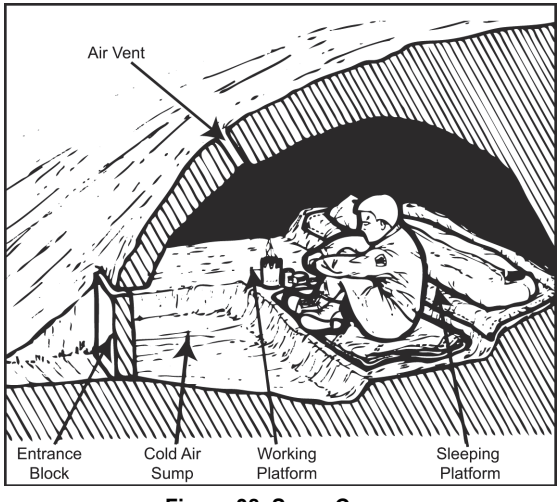


Figure 38. Snow Cave

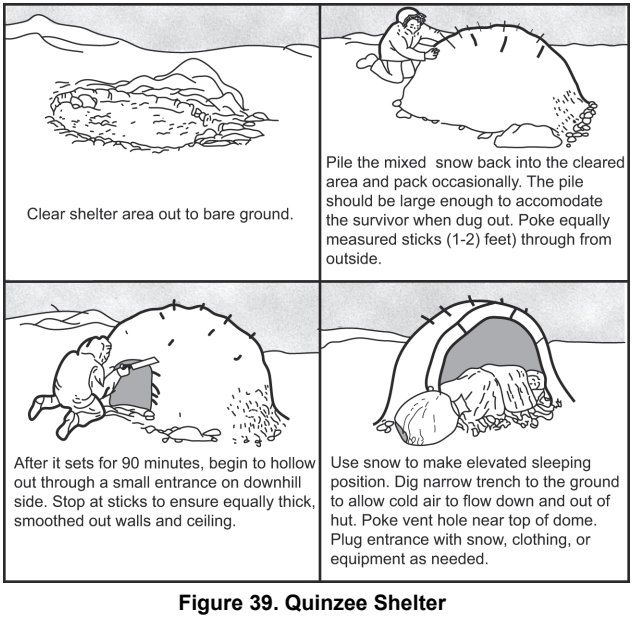

Clear shelter area out to bare ground.
Pile the mixed snow back into the cleared area and pack occasionally. The pile should be large enough to accomodate the survivor when dug out. Poke equally measured sticks (1-2) feet) through from outside.
After it sets for 90 minutes, begin to hollow out through a small entrance on downhill side. Stop at sticks to ensure equally thick, smoothed out walls and ceiling.
Use snow to make elevated sleeping position. Dig narrow trench to the ground to allow cold air to flow down and out of hut. Poke vent hole near top of dome. Plug entrance with snow, clothing, or equipment as needed.

Figure 39. Quinzee Shelter

(4) Shade shelter. Sunny climates require shade to protect from ultraviolet rays (figure 40). The following are considerations when building a shade shelter:

(a) To reduce the surface temperature in hot climates, the shelter floor should be elevated or dug down approximately 18 inches.

(b) For thermal protection, a minimum of two layers of material (12 to 18 inches apart) are required. White is the best color to reflect heat. The inner-most layer should be made of a darker material.

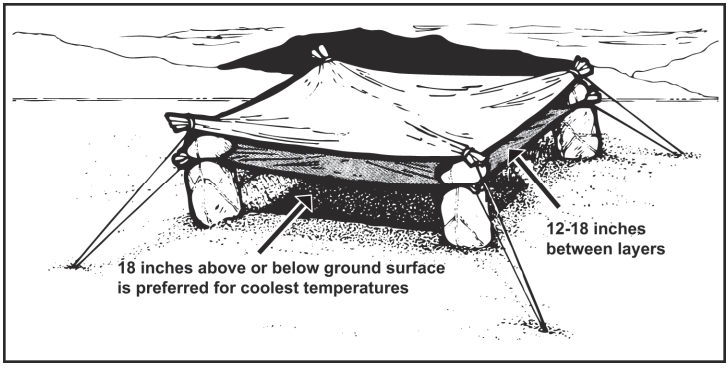


Figure 40. Poncho/Parachute Shade Shelter

(5) Elevated platform shelter (figure 41). Tropical/wet climates require an enclosed, elevated shelter for protection from dampness and insects.

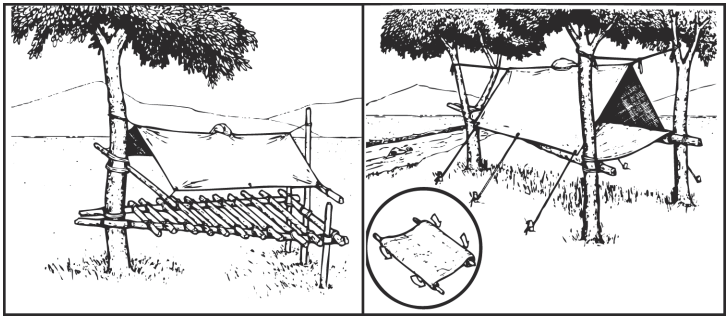


Figure 41. Elevated Platform Shelter

e. Shelter construction.

(1) Locate the entrance 45 to 90 degrees from prevailing winds.

(2) Cover it with available material.

(a) If natural materials are used, arrange them in layers starting at the bottom with each layer overlapping previous layer (figure 42).

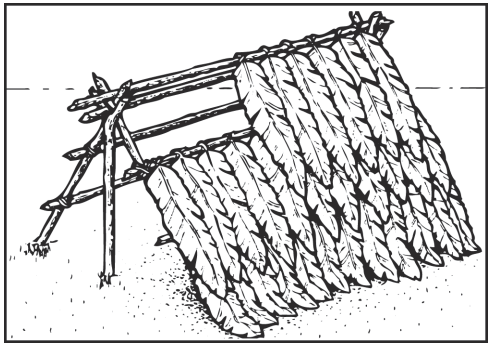


Figure 42. Shingle Method

(b) If using porous material like parachutes or blankets:

- Stretch them as tight as possible.
- Construct each side using a 45 to 60 degree slope.
- Use more layers in heavy rain.

f. Bed construction. Construct bed to protect yourself from the cold, damp ground (i.e., raft, foam rubber from vehicle seats, boughs, leaves, and/or dry moss).

g. In wet climates dig a ditch around the shelter to aid/improve drainage and prevent water from flowing into and through the shelter.

5. Fires

CAUTION
Always weigh the hazards and risks of detection against the need for a fire.

a. Evasion considerations:

(1) Use trees or other sources to dissipate smoke.

(2) Use fires at dusk, dawn, or during inclement weather.

(3) Use fires at times consistent with the local population.

b. Building a fire: Three essential elements for starting a fire are HEAT, FUEL, and OXYGEN.

(1) Heat sources.

(a) Matches, a lighter, spark devices, batteries, a magnifying glass, and flashlight reflectors.

(b) Pyrotechnics such as flares are a last resort due to their signature.

(2) Fuel sources (figure 43).Fuel is divided into three categories: tinder, kindling, and fuel. Gather large amounts of each category before igniting a fire.

(a) Tinder.

- Tinder must be finely shaved or shredded to provide a low combustion point and fluffed to allow oxygen to flow through it.
- To get tinder to burn hotter and longer, saturate it with petroleum or alcohol-based products (e.g., Vaseline, chap stick, insect repellant, or fuel).
- Examples of tinder include dry bark, cotton, dry grass, gunpowder, pitch (sap saturated coniferous wood), and candle wick.

(b) Kindling.

- Kindling is pencil-lead to pencil-sized dry wood that is small enough to ignite from a small flame or tinder.
- Gradually add larger kindling until arriving at the fuel size.

(c) Fuel.

- Dry wood, dead branches, bamboo (open chambers as needed to prevent explosion), and dry dung.
- Remove bark and use hardwoods to reduce smoke.

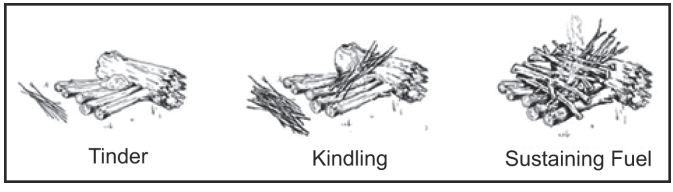


Figure 43. Fuel Sources with Fire Platform/Brace

c. Types. Fires are built to meet specific needs or uses.

(1) Tepee fire (figure 44). Use a tepee fire to produce concentrated heat source for cooking, lighting, or signaling. To build, arrange the tinder and a few sticks of kindling in the shape of a tepee or cone. Light the center. As the tepee burns, the outside logs will fall inward, feeding the fire. This type of fire burns well even with wet wood.

(2) Log Cabin/Pyramid (figure 44). Use log cabin and pyramid fires to produce large amounts of light and heat to dry wood and provide coals for cooking, etc. To construct, place two small logs or branches parallel on the ground. Place a solid layer of small logs across the parallel logs. Add three or four more layers of logs or branches, each layer smaller than and at a right angle to the layer below it. Make a starter fire on top of the pyramid. As the starter fire burns, it will ignite the logs below it.

This gives you a fire that burns downward, requiring no attention during the night.

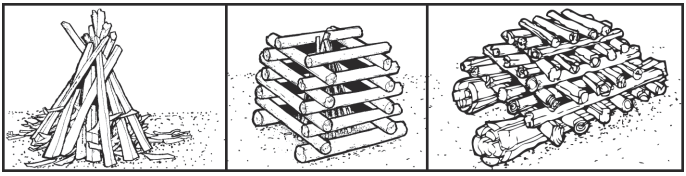


Figure 44. Tepee, Log Cabin, Pyramid Fires

(3) Scout fire. This is a small fire used to boil water or cook a quick meal. It is constructed in a hole about 1 foot deep by 1 foot wide. When the need is met, the soil is placed back in the hole on top of the coals. The cooking spot will radiate heat for an extended period of time providing the survivor with a warm place to rest and minimize heat loss through conduction.

(a) Ensure coals are covered with at least 8 inches of packed soil.

(b) Moist soil may create steam pockets that can burn the survivor.

(4) Long fire (figure 45). A long fire is used to spread heat out over a great distance to benefit a large group. It consumes little fuel and is good for cooking. To construct:

(a) Set 2 thick, green (not dry) logs parallel to each other, with 10 to 12 inches of space between them.

(b) Lift the ends of both green logs and insert a thick stick underneath them, running perpendicular to the logs, and do the same on the other side, forming a rectangle. The green logs will form the long sides on top, and the thick sticks form the short sides underneath. This slight raising of the green logs by placing the thick sticks underneath them will improve the air flow at the fire's base.

(c) Gather dry grass, twigs, wood chips and small sticks for tinder, and pile it up in a line in the middle of the fire, parallel to the green logs. Cover the tinder with larger sticks and ignite.

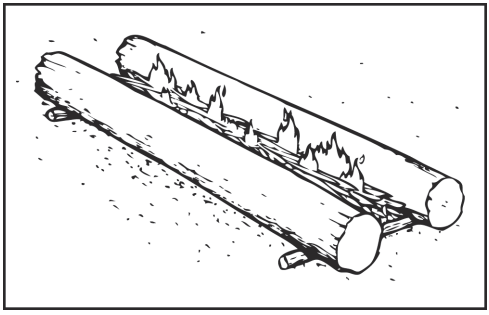


Figure 45. Long Fire

(5) Sod fire (figure 46). Use fire reflectors to get the most warmth from a fire. Build fire against rocks or logs.

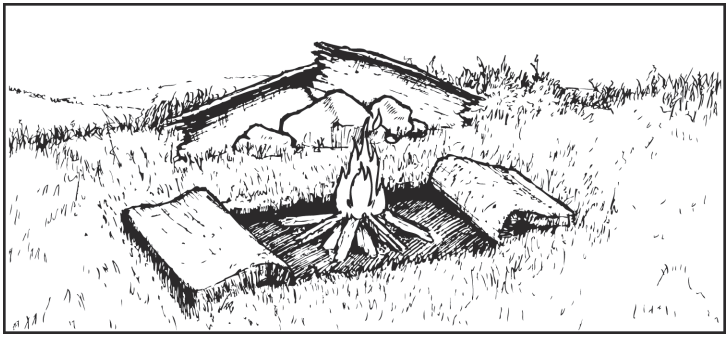


Figure 46. Sod Fire

(6) Dakota fire hole (figure 47). This is used in high wind and evasion situations. To construct a Dakota fire hole:

(a) Dig a hole in the ground.

(b) On the upwind side of this hole, poke or dig a large connecting hole for ventilation.

(c) Build the fire in the hole as illustrated below (figure 47).

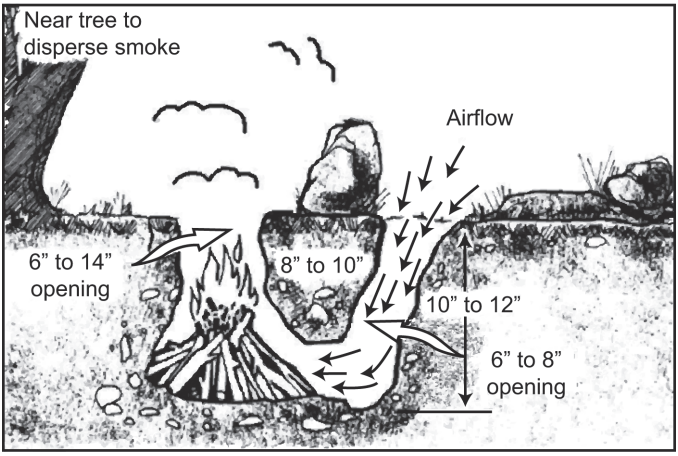


Figure 47. Dakota Fire Hole

CAUTION

DO NOT use porous rocks or riverbed rock. They may explode when heated.

d. Starting a Fire:

(a) Clear the brush and scrape the surface soil from the spot you have selected. Clear a circle at least 1 meter in diameter so there is little chance of the fire spreading.

(b) If time allows, construct a fire wall using logs or rocks. This wall will help to reflect or direct heat where you want it and offer wind protection to prevent smothering the flame. A large log (as shown in figure 43) can also be used as a platform/brace for easy starting in difficult conditions.

(c) Example methods to start a fire:

- Matches or lighter
- Flint and steel (experiment with various rocks and metals until a good spark is produced).
- Convex Lens (lens from binoculars, camera, telescopic sights, or magnifying glass) can be used only on bright, sunny days. Angle the lens to concentrate the sun's rays on the tinder. Hold the lens over the same spot until the tinder begins to smolder. Gently blow or fan the tinder into flame, and apply it to the fire lay.

- Battery - Use of this method depends on the type of battery available. Attach a wire to each terminal. Touch the ends of the bare wires together next to the tinder so the sparks will ignite it.
- Gunpowder - Carefully extract the bullet from the shell casing, and use the gunpowder as tinder. A spark will ignite the powder. Be extremely careful when extracting the bullet from the case.

(d) Always light your fire from the upwind side. Make sure to lay your tinder, kindling, and fuel so that your fire will burn as long as you need it.

CAUTION

When using accelerants (e.g., gasoline or gunpowder) to ignite a fire, ensure your face, hands, and arms are far enough away to avoid accidental or explosive burns.

Chapter VII
WATER

1. Water Requirements

a. Drink water.

b. Exertion, heat, injury, and illness all increase water loss.

2. Signs and Symptoms of Dehydration

a. Dry, chapped lips.

b. Dark yellow urine.

c. Thirst, weakness, fatigue, dizziness, and headache.

3. Water Procurement

a. There are no water substitutes.

b. DO NOT drink urine, fish juices, blood, or sea water.

c. Water sources (figures 48 and 49):

(1) Surface water (i.e., streams, lakes, and springs).

(2) Precipitation (i.e., rain, snow, dew, or sleet).

(3) Subsurface (i.e., wells and cisterns).

(4) Ground water (in an arid or desert environment). Look for the following indicators of water:

(a) An abundance of lush, green vegetation.

(b) Drainages and low-lying areas.

(c) “V” intersecting game trails.

(d) Swarming insects.

(e) Croaking frogs.

(f) Birds fly to water in early morning and away from it in late afternoon.

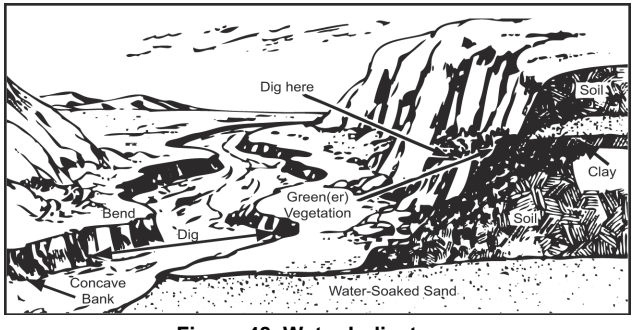


Figure 48. Water Indicators

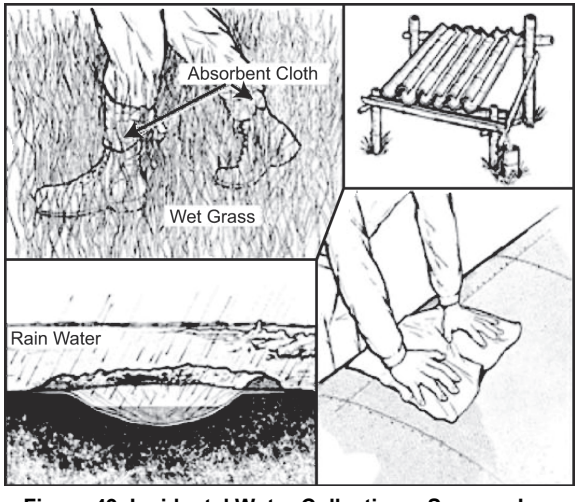


Figure 49. Incidental Water Collection – Snow or Ice

(g) Use caution when eating snow or ice. It lowers the body temperature, induces dehydration, and may cause minor cold injury to lips and mouth.

(h) Melt with heat (flame). Stir frequently to prevent damaging container.

(i) Melt with body heat. Use a waterproof container and place it between layers of clothing.

(5) Open seas.

(a) Use water available in survival kits.

(b) Precipitation: Drink as much as possible. Catch rain in spray shields and life raft covers, and collect dew off the raft.

(c) Fresh water from old sea ice or icebergs has rounded corners, appears bluish/blackish in color, and tastes relatively salt-free.

(6) Tropical areas.

(a) All available sources previously mentioned.

(b) Vegetation.

- Plants with hollow sections can collect moisture.

(c) Vines (figure 50).

- Cut bark (DO NOT USE milky/red sap).
- If juice is clear and water-like, cut as large a piece of vine as possible (cut the top first).

- Pour into hands to check smell, color, taste, and drinkability.
- DO NOT touch vine to lips.
- When water flow stops, cut off 4-6 inches of opposite end.
- Water will flow again.

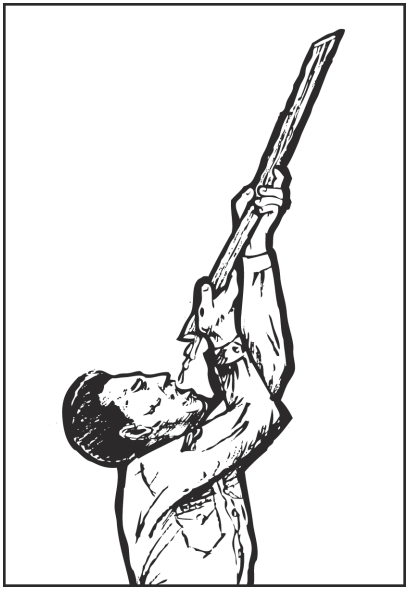


Figure 50. Water Vines

(d) Bamboo.

- Shake and listen for water.
- Bore hole at bottom of section to obtain water.
- Cut out an entire section to carry with you. Filter and purify the water.

(e) Coconuts.

- Break through husk and nut to obtain water utilizing knife, saw, or pointed stick.
- Ripe coconuts (on the ground) may cause excessive diarrhea.

(f) Beach well. Obtain water along the coast by digging a well (figure 51).

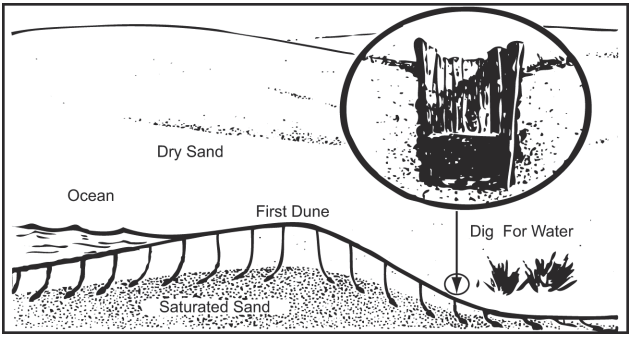


Figure 51. Beach Well

(7) Dry areas. Construct as many collection devices as possible/necessary.

(a) Transpiration bag (figure 52). Utilize a clear plastic bag and ensure it is as airtight as possible.

Figure 52. Transpiration Bag

(8) Vegetation bag (figure 53). Utilize a clear plastic bag, bundle vegetation, and ensure the bag is as airtight as possible. Water may taste like vegetation.

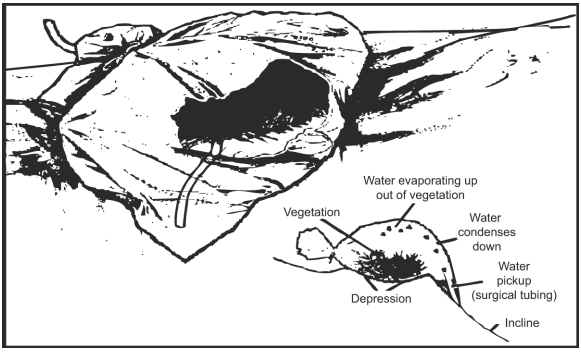


Figure 53. Vegetation Bag

CAUTION
DO NOT use poisonous plants in vegetation or transpiration bags.

4. Water Preparation and Storage

Note: Filtration does NOT equal purification.

a. Filtration.

(1) When procuring dirty water, filter it through a porous material (sand/charcoal) prior to purifying. See chapter IX for filtration examples.

(2) A seepage basin also will help to filter water (figure 54).

Figure 54. Seepage Basin

b. Purification.

(1) Water from live plants requires no further treatment.

(2) Purify all other water. Consider all surface water to be biologically contaminated.

(a) Bring it to a rolling boil and then strain.

(b) Water purification tablets. Follow instructions on the package or use one tablet for clear water and two tablets for muddy/murky water.

(c) Bleach: Use 4 drops per quart of water.

(d) Two percent Iodine tincture (in first aid kit): Use 10 drops per quart of water.

(e) Ten percent povidone Iodine Solution (in first aid kit): Use 1-2 drops per quart.

c. Potable Water.

(1) Pour it from one container to another to aerate and improve taste.

(2) If water cannot be purified, obtain it from cleanest source possible and filter it.

(a) Put the water in a clear container and expose it to the sun's UV rays to kill bacteria.

(b) Four to six hours of direct sunlight should be sufficient to kill bacteria and may kill pathogens if temperature and UV light are optimal.

CAUTION

Be aware some plastic containers may degrade in direct sunlight and contaminate the water. Drinking this water can make you sick. A good indicator would be cloudy water after prolonged exposure to direct sunlight.

d. Storage.

(1) To prevent contamination, use a clean, covered, or sealed container.

(2) Use clear plastic bags, trash bags, prophylactics, bamboo, or flotation gear.

e. Cold climate. Bury water containers upside down in 8 inches of snow or more to minimize exposure to cap / opening and separate ice from water.

CAUTION

Commercial micro-filters are not designed for purification because they have no iodine element and only remove protozoan and not bacteria or viruses. Consult the manufacturer's website to determine filter capabilities.

Chapter VIII
FOOD

1. Food Sources

a. Plants. When possible, eat plants you can positively identify as safe to eat:

(1) Global edible plants that are easily identifiable (figure 55):

(a) Cattail (15 Typha species):

- Starchy rhizomes (root stalks) can be gathered year round.
- Edible young shoots/pollen may be gathered during spring and summer.
- Down-like seed heads in mature plants can be used for insulation and as flash tinder.
- Do not eat if growing in a suspect water source.

(b) Palm (2,600 species):

- Palm hearts are an excellent energy food found in all palm bushes and trees.
- Palm hearts are located in the center of the stock where fronds connect.
- Fruit on some palms is edible (dates, coconuts, acai berries)
- The evader should gather only palm hearts from small shrub palms that require minimum effort and disturbance to the environment.

(c) Seaweed (3,000 species of salt water green, brown, and red algae):

- All leafy salt water seaweeds (green, brown, and red) are edible.
- Never eat hair-like algae, some are poisonous.
- It is very nutritious raw or cooked.
- It contains vitamins, minerals, protein, and some carbohydrates.

(d) Ferns (10,000 species):

- Fiddle heads (immature, scrolled tips of fronds) can be eaten raw or cooked.
- Many large tree-fern rhizomes (underground root stalks) contain edible starch.

(e) Bamboo (1,200 species):

- Boiled young shoots can be eaten (do not eat raw).
- Mature stocks can be used as improvised food gathering devices.

(f) Other. Dandelion, grasses, aggregate berries (like raspberries), clover, and plantains are also easily identifiable food sources. Check borders of evasion chart for other edible plants in the region.

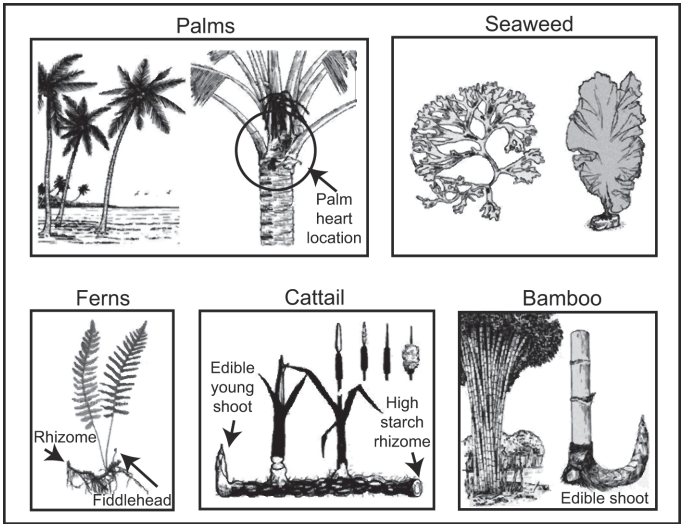


Figure 55. Common Edible Plants

Note: The critical factor in using plants for food is to avoid accidental poisoning. Eat only those plants you can positively identify and know are safe to eat. If you cannot positively identify an edible plant and choose to try an unknown plant, these guidelines may help determine edibility. If you do not recognize it, TEST IT!

(2) Plant Edibility Test Criteria.

(a) Test precautions.

- Never assume a raw plant is edible because the cooked plant you tested was edible. Cooking destroys certain toxins. It is best to test the raw plant first.
- Never assume an entire plant is edible because one part is edible.
- Never assume a plant is edible because you see animals eating it.
- Nicotine users should be cautious using taste to identify toxins because tobacco use reduces sensitivity to many specific plant toxins.
- Testing unknown plants comes with the risk of a negative reaction.
- Reactions to poisonous plants may include:

Nausea	Vomiting	Cramping
Diarrhea	Numbness	Tingling
Redness	Nervousness	Itching

Dizziness	Swelling	Drowsiness
Pain	Burning	Lethargy
Eye light sensitivity		

(b) Prepare yourself for the test.

- Start with an 8 hour empty stomach.
- Drink only purified water.

(c) Select a plant: Ensure there are enough plants to make testing worth your time and effort.

- LOOK FIRST FOR plant parts that contain high energy.
  - Fruit.
  - Seeds, grains, nuts.
  - Roots, bulbs, tubers.

CAUTION
Red and white berries are more likely to be toxic than black or blue berries.

CAUTION
DO NOT test the following plants.

- NEVER TEST:
  - Fungi – (e.g., mushrooms, mold).
  - Seeds in pods (e.g., unknown beans, peas).
  - Plants having umbrella shaped flowers (see figure 56).

Figure 56. Umbrella Shaped Flower (Hemlock)

- Plants with milky sap (e.g., poinsettia).
- Shiny/glossy leaf plants (e.g., many tropical house plants).
- White, greenish, or yellowish berries.

(d) Select a portion of the plant to test (only one plant part at a time)

- Test starchy parts of plants (i.e., tubers, bulbs, seeds, nuts, roots).
- Test unknown fruit portion of plant.
- Test leaves and stems from plants growing in shade or moist soil.

Note: Timeframes for plant edibility tests vary. For the purpose of this manual, and to simplify the procedure, the following test uses a single, safe number: "8". See table 3.

(3) Plant edibility test.

Table 3. Plant Edibility Test

IDENTIFYING EDIBLE PLANTS USING YOUR SENSES

STEP 1: SIGHT RECOGNITION

a. LOOK FIRST FOR plant parts containing high energy (IAW criteria in para.. 1.a.(2)(c)).

b. NEVER TEST plant/plant parts deemed dangerous (IAW criteria in para.. 1.a.(2)(c)).

STEP 2: SMELL SENSITIVITY

a. If any unpleasant odor is present, STOP THE TEST! These odors include:

(1) Moldy, musty.

(2) Unusual smell.

b. If there is an almond scent, STOP THE TEST!

STEP 3: SKIN SENSITIVITY

a. Using a pinch of crushed plant, place plant juice on your outer lip for 8 minutes.
b. If a reaction occurs, STOP THE TEST!
c. If no reaction occurs, move on to the taste test.

STEP 4: TASTE AND MOUTH SENSITIVITY

a. Taste a small amount of plant juice on the tip of the tongue. If a reaction occurs, STOP THE TEST!
b. Chew a plant and leave it in your mouth for 8 minutes. Do not swallow the juice or pulp.
c. If it has an unpleasant taste or a reaction occurs, STOP THE TEST!
d. If no reaction occurs after 8 minutes, swallow.

STEP 5: DIGESTIVE SYSTEM SENSITIVITY

a. After swallowing wait 8 hours. If no reaction occurs, continue.
b. Chew a handful of plant, swallow, and wait 8 hours.
c. If a reaction occurs, STOP THE TEST!
d. If no reaction occurs…

CONSIDER THE TESTED PLANT PART EDIBLE.

(4) When subsisting primarily on edible plants, be sure to vary your diet by eating other species.

(5) Eating only one type of vegetation may have adverse effects.

(6) Eating large portions of plant food on an empty stomach may cause diarrhea, nausea, or cramps.

b. Animals:

(1) Evasion in a natural environment. The following animals may be obtained with minimal effort and minimal disturbance to surroundings:

(a) Earth worms – in rich dark soil.

(b) Grubs – in decaying logs.

(c) Insects – in decaying matter and standing water.

- Kill and remove any stingers (bees, ants, etc.).
- Avoid insects that are hairy and bright colored.
- Avoid insects that carry disease (flies, mosquitoes, ticks).
- Avoid spiders.

(d) Shelled animals – Mussels, snails, oysters (never eat cone-shaped animals).

(e) Amphibians/reptiles – Eat only the muscles in frogs, lizards, or snakes.

(2) Evasion in an urban environment is difficult, but food is available.

(a) Small dogs, cats, rats, squirrels, etc. can be eaten (reference section (3)(d), Mammals).

(b) Birds (reference section (3)(c), Birds).

(c) Refuse piles/areas

(d) Theft of food is dangerous and not recommended.

(e) If stealing food is your only means of sustaining life, then:

- Be certain not to be seen.
- Take only what will not be missed.
- Leave no evidence of your presence.
- Don't return to the site of the previous theft.

(3) In a long-term survival situation, the following animals may be obtained with some improvising and effort:

(a) Shelled animals and crustaceans (e.g., clams, crabs, crawfish, etc.).

(b) Fish. Use hand fishing, an improvised fish hook, spear, or trap (figure 57).

- Kill fish before bringing it into the raft.
- Do not secure fish line to yourself or the raft.
- Do not eat unhealthy or odd looking fish.
- Do not eat fish eggs, liver, or entrails.
- Avoid dead crustaceans above the high-tide mark.

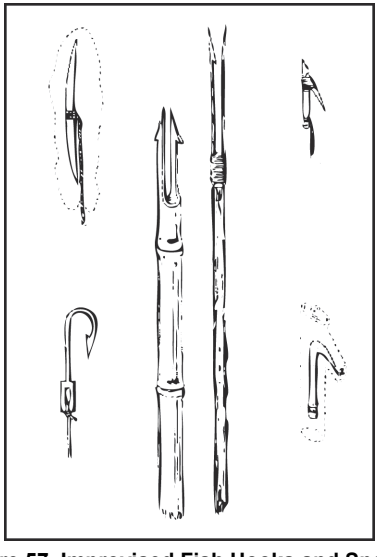


Figure 57. Improvised Fish Hooks and Spears

(c) Birds. Simple snares work well with ground birds.

- Scavenger birds can be caught with food scraps, hook, and line.
- Catching birds can be very noisy. Know your tactical environment.

(d) Mammals. simple snares work well with rodents and rabbits.

- Place snares on trails, mouths of dens, and feeding areas (figure 58).
- Use strong material (i.e., wire, 550 cord, etc.).
- Use locking loops (figure 59).
- Make loops slightly larger than the animal's head (see table 4).

Table 4. Loop Sizes

Animal	Noose Size	Ground Clearance
Squirrel	2 ½ to 3 inches	½ to 1 ½ inches
Rabbit	4 to 5 ½ inches	1 ½ to 3 inches
Raccoon	6 inches	3 to 4 inches
Fox	7 to 10 inches	8 to 10 inches
Coyote	12 to 14 inches	12 inches
Bobcat	9 inches	8 inches

- Place as many snares as possible. (See figure 60 example.)
- Try not to disturb the area any more than necessary.
- Use funneling (figure 61).
- Improvise procurement devices (figure 62).
- Kill the animal before removing the snare or handling it.

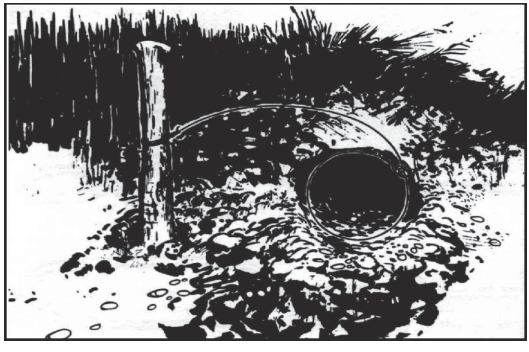


Figure 58. Snare Placement

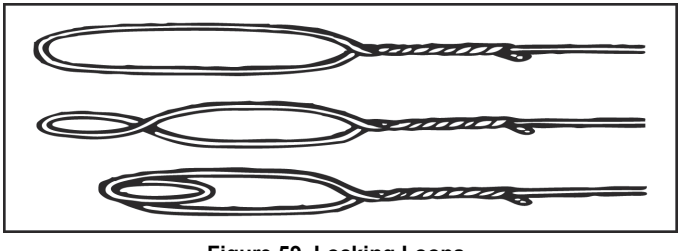


Figure 59. Locking Loops

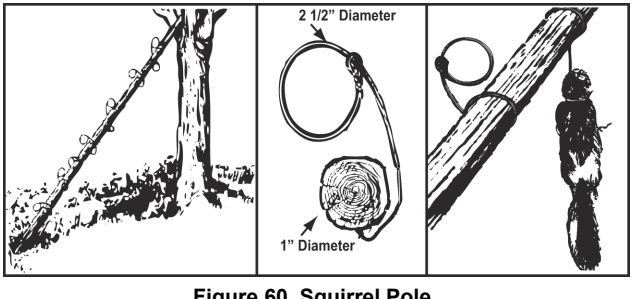


Figure 60. Squirrel Pole

Figure 61. Funneling

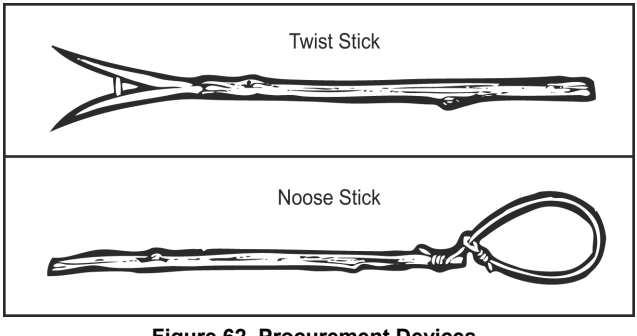


Figure 62. Procurement Devices

(4) Key safety/tactical considerations:

(a) Use caution, animals in distress may attract the enemy or larger, more dangerous animals.

(b) Avoid reaching into dark holes.

(c) Wear shoes to protect feet when wading in water.

2. Food Preparation

a. Plants are often tastier cooked in boiling water or baked on coals. Both require fire and are only recommended in non-hostile situations:

(1) Boil in an improvised metal cooking container made from available resources.

(2) Bake edible tubers or bulbs in mud packed balls under the coals of fire.

(3) Roast nuts by placing them in metal container with hot coals and shaking them to retard burning.

b. Animals are best cooked if in non-hostile situations. Before cooking, remove the skin, shells, and internal organs of animals larger than your thumb (i.e., crustaceans, reptiles, amphibians, fish, birds, and mammals).

(1) Boil bite sized pieces in water to conserve food value in the broth. Drink broth.

(2) Bake larger game in edible leaves covered with soil or mud beneath the coals of your fire. This may take several hours.

(3) Roast meat on a stick over the coals of your fire. Small pieces of meat or insects (grasshoppers) can be roasted over a small flame or candle.

(4) Understand much of your food value will be lost in the fire through burning of meat and drippings.

(5) Roast small bits of meat over a candle or burn them with a magnifying glass. Cooking with a candle is hard to detect during daylight. Cook when there are no people nearby; food smells travel and linger and could draw unwanted attention.

(6) To kill parasites, thoroughly cook all wild game, freshwater fish, clams mussels, snails, crawfish, and scavenger birds.

(7) Saltwater fish may be eaten raw.

3. Food Preservation

a. Keep animals alive (when feasible or in a non-combat environment).

b. Keep plants and meats cold:

(1) Freeze food in bite sized portions.

(2) Place food in a cold cache away from your shelter and protected from scavengers.

(3) Wrap food in water-proof container and place it in a cold stream.

(4) Bury it and mark in cool, shaded soil; next to stream is often best.

c. Dehydrate both plant foods and meat:

(1) Sun dry thin slices or strips.

(2) Dehydrate thin strips of meat over fire.

(3) Smoke thin strips of meat over green smoldering hard woods like hickory, fruit trees, ash, or maple.

Protect food by wrapping it tightly with clean material. This helps prevent insects, bacterial, and fungus spores from getting to food. Bury or hang wrapped food out of the reach of animals. (This may be difficult.)

Note: The best storage and protection of food is in your body.

CAUTION

In tactical situations, many preservation methods could reveal your position.

Chapter IX
INDUCED CONDITIONS

1. Nuclear Conditions

CAUTION
Radiation protection depends on time of exposure, distance from the source, and shielding.

a. Protection.

(1) FIND PROTECTIVE SHELTER IMMEDIATELY!

(2) Gather all equipment for survival (time permitting).

(3) Avoid detection and capture.

(a) Seek existing shelter that may be improved (figure 63).

Figure 63. Immediate Action Shelter

(b) If no shelter is available, dig a trench or foxhole as follows:

- Dig a trench deep enough for protection, then enlarge it for comfort.
- Cover it with available material (figure 64).

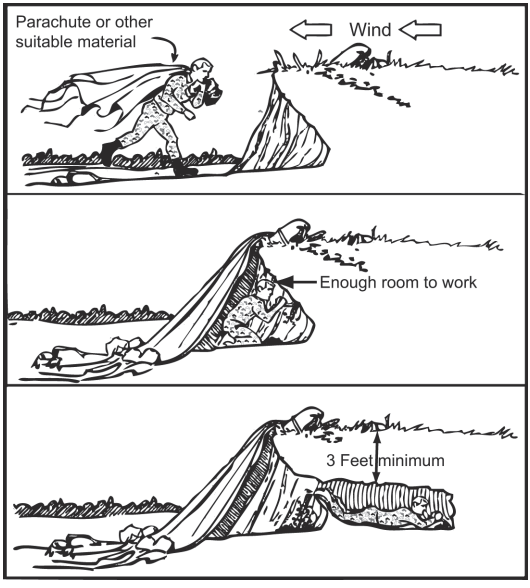


Figure 64. Improvised Shelter

(4) Read radiation shielding efficiencies in table 5.

(5) Lie down, keep warm, rest, and sleep.

Table 5. Radiation Shielding Efficiencies

NUCLEAR EXPLOSIONS: Fall flat. Cover exposed body parts. Present minimal profile to direction of blast. ***DO NOT*** look at a fireball! Remain prone until blast effects are over.

SHELTER: Pick a shelter as soon as possible (5 minutes unsheltered is the maximum!).

PRIORITY:

(1) Cave or tunnel covered with 3 or more feet of earth.
(2) Storm/storage cellars.
(3) Culverts.
(4) Basements.
(5) Abandoned stone/mud buildings.
(6) Foxhole 4 feet deep - remove topsoil within a 2 foot radius of the foxhole lip.

RADIATION SHIELDING EFFICIENCIES

Iron/Steel	.7 inches	Cinder Block	5.3 inches
Brick	2.0 inches	Ice	6.8 inches
Concrete	2.2 inches	Soft Wood	8.8 inches
Earth	3.3 inches	Snow	20.3 inches

One thickness reduces received radiation doses by ½. Additional thickness added to any amount of thickness reduces received radiation dose by ½.

SHELTER SURVIVAL: Keep contaminated materials out of the shelter.

Good Weather: Bury contaminated clothing outside of the shelter (recover it later).

Bad Weather: Shake clothing strongly or it beat with branches. Rinse and/or shake wet clothing.

DO NOT wring out clothing!

PERSONAL HYGIENE: Wash your entire body with soap and any water; give close attention to fingernails and hairy parts.

No Water: Wipe all exposed skin surfaces with a clean cloth or uncontaminated soil.

Fallout/dusty conditions – keep your entire body covered. Keep a handkerchief or cloth over your mouth and nose.

Improvise goggles. ***DO NOT*** smoke!

b. Sustenance.

(1) Water.

(a) Allow no more than 30 minutes exposure on the third day for water procurement.

(b) Water sources (in order of preference):

- Springs, wells, or underground sources are safest.
- Water in pipes/containers in abandoned buildings.
- Snow (6 or more inches below the surface during fallout).
- Streams and rivers (filtered before drinking).
- Lakes, ponds, pools.

- Water from below the surface (DO NOT stir up the water).
- Seep well.

(c) Water preparation (figure 65 and 66).

- Filter through earth to remove 99 percent of radioactivity.
- Purify all water sources.

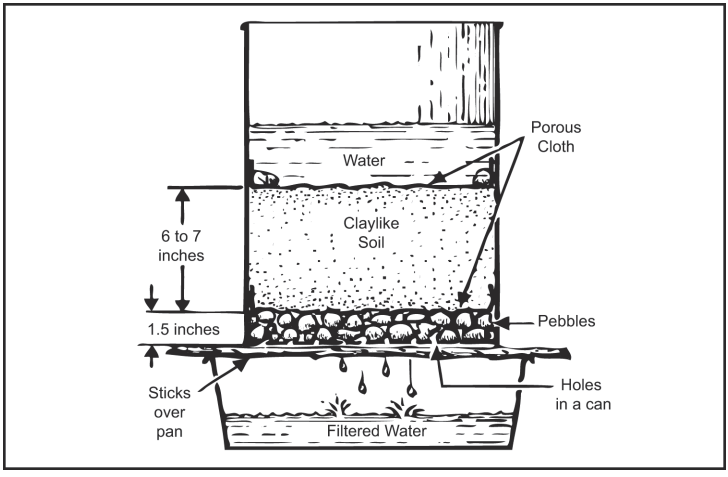


Figure 65. Filtration Systems, Filtering Water

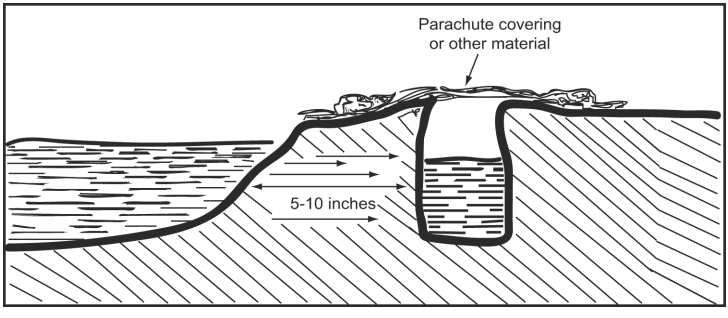


Figure 66. Filtration Systems, Settling Water

(2) Food.

(a) Processed foods (canned or packaged) are preferred; wash and wipe containers before use.

(b) Animal foods.

- Avoid animals that appear sick or dying.
- Skin carefully to avoid contaminating meat.
- Before cooking, cut meat away from bone, leaving at least 1/8 inch of meat on the bone.
- Discard all internal organs.
- Cook all meat until very well done.

(c) Animal foods to AVOID:

- Aquatic food sources. (Use only in extreme emergency. They most likely have a high concentration of radiation.)
- Shells of all eggs (inside contents will be safe to eat).
- Milk from animals.

(d) Plant foods (in order of preference).

- Plants whose edible portions grow underground (potatoes, turnips, carrots). Wash and remove skin.
- Edible portions growing above ground that can be washed and peeled or skinned (bananas, apples).
- Smooth skinned vegetables, fruits, or above-ground plants that are not easily peeled or washed.

c. Self-aid.

(1) General rules.

(a) Prevent exposure to contaminants.

(b) Use personal hygiene practices and remove body waste from shelter.

(c) Rest, avoid fatigue.

(d) Drink liquids.

(2) Wounds.

(a) Clean affected areas.

(b) Use antibacterial ointment or cleaning solution.

(c) Cover with clean dressing.

(d) Watch for signs of infection.

(3) Burns.

(a) Clean affected area.

(b) Cover with clean dressing.

(4) Radiation sickness (nausea, weakness, fatigue, vomiting, diarrhea, hair loss, radiation burns).

(a) Time is required to overcome.

(b) Drink fluids.

(c) Maintain food intake.

(d) Prevent additional exposure.

(e) Rest.

2. Biological Conditions

a. Clues that may alert you to a biological attack.

(1) Enemy aircraft are dropping objects or spraying.

(2) There are breakable containers or unusual bombs, particularly those bursting with little to no blast and muffled explosions.

(3) You see smoke or mist of unknown origin.

(4) There are unusual substances on the ground or vegetation.

(5) There are dead or sick animals.

b. Protection from biological agents.

(1) Use protective equipment.

(2) Bathe as soon as the situation permits.

(3) Wash hair and body thoroughly with soap and water.

(4) Clean thoroughly under fingernails.

(5) Clean teeth, gums, tongue, and roof of mouth frequently.

c. Survival tips for biological conditions.

(1) Keep body and living area clean.

(2) Stay alert for clues of a biological attack.

(3) Keep nose, mouth, and skin covered.

(4) Keep food and water protected. Bottled and canned food are safe, if sealed.

(5) If in doubt, boil food and water for 10 minutes.

(6) Construct a shelter in a clear area away from vegetation with an entrance 90 degrees to the prevailing wind.

(7) If traveling, travel crosswind or upwind.

(8) Stay in high terrain, avoid depressions (biological substances settle in depressions).

3. Chemical Conditions

a. Indicators.

(1) Wildlife. Presence of sick or dying animals

(2) Sound. Muffled explosions are possible indications of chemical agent bombs.

(3) Feel. Irritation to nose, eyes, or skin and/or moisture on the skin.

(4) Taste. Strange taste in food or water indicates contamination.

(5) General indications. Tears, difficulty breathing, choking, itching, coughing, dizziness.

(6) Smell. Many agents have little or no odor.

(7) Sight. Many agents are colorless.

(a) Color. Yellow, orange, or red smoke or mist.

(b) Liquid. Oily, dark patches on leaves and ground.

(c) Gas. Some agents appear as a mist immediately after a shell burst.

(d) Solid. Most solid state agents have some color.

b. Protection against chemical agents.

(1) Use individual protective equipment.

(2) Avoid contaminated areas.

(a) QUICKLY EXIT the contaminated area by moving upwind or crosswind.

(b) Select routes on high ground.

(c) Avoid cellars, ditches, trenches, gullies, and valleys.

(d) Avoid woods, tall grasses, and bushes as they tend to hold chemical agent vapors.

(e) Decontaminate body and equipment as soon as possible.

- Remove chemicals by pinch-blotting.
- Neutralize utilizing decontamination kit..
- Remove chemicals from your body using warm, soapy water.
- For equipment, use warm soapy water or 5% bleach with a contact time of 15 minutes prior to rinsing, destroy or bury it.

c. Self-aid in chemically contaminated areas.

(1) If chemical defense equipment is available:

(a) Use all protective equipment.

(b) Follow antidote directions when needed.

(2) If chemical defense equipment is not available:

(a) Remove or tear away contaminated clothing.

(b) Rinse contaminated areas with water.

(c) Improvise a breathing filter using materials available (t-shirt, or any fabric).

d. Tips for the survivor:

(1) DO NOT use wood from a contaminated area for fire.

(2) Look for signs of chemical agents around water sources before procurement (oil spots, foreign odors, dead fish/animals).

(3) Keep food and water protected.

(4) DO NOT use plants in contaminated areas for food or water.

(5) If travel is required; direction of travel should be crosswind of detonation or agent, until out of range (you cannot out run) it.

Chapter X
URBAN EVASION

1. Legal Aspects

a. Consider legal status, ROE, and repercussions for hostile actions.

b. Disguises.

(1) While evading, wearing civilian/non-traditional clothes is permissible.

(2) Uniform items or Geneva Conventions ID should be retained for proof of status.

(3) Prisoner of war (POW) escapees are authorized the use of a disguise but should not commit belligerent acts.

c. Protected emblems (Red Cross, Red Crescent, etc.) may not be used for purposes of evasion and escape.

2. Blending Techniques

a. Blending is used to prevent long distance, low light, and night recognition.

b. Attempt to act/seem like you belong (including movement techniques).

c. Utilize cultural awareness and knowledge to blend with the local populace.

d. Use immediate/improvised ways to reduce recognition:

(1) Un-blouse pants to help conceal boots. Turn uniform inside out under low light or night movement.

(2) Procure items to help blend in (sheets, curtains, seat covers, or clothing).

(3) Conceal weapons and equipment.

3. Direction of Travel

a. Follow EPA/contingency plan.

b. Move to facilitate breaking visual contact with hostile forces.

c. Maintain situational awareness while moving to locate/avoid:

(1) Friendly controlled areas.

(2) Rally points or locations.

(3) Known strong holds.

(4) Checkpoints.

(5) Police stations.

d. Identify known/significant landmarks (man-made/natural) to assist with navigation (example: Satellite dishes nearly always point to the equator.).

4. Urban Evasion Movement Techniques

a. Use evasion movement principles:

(1) Avoid silhouetting.

(2) Use cover.

(3) Move from concealment to concealment.

(4) Execute deliberate movement in shadows, if possible.

(5) Avoid moving into market-type areas and crowds.

(6) Consider bypassing markets and other crowded places by going around, under, through, or over them.

b. Negotiating the following during an urban evasion:

(1) Crossing open areas (intersections, roads, alleys, etc.):

(a) Take the shortest and most concealed route across.

(b) Avoid enemy and friendly engagements.

(c) Do not cross through the middle of intersections.

(2) Openings/doors and windows:

(a) Ensure you identify and scan for movement.

(b) Attempt to screen movement using telephone poles, vehicles, fences, debris, etc.

(c) Attempt to step over, pass under, or pass as close to doors and windows as possible.

(d) Do not use doorways or windows as points of concealment.

(3) Moving along walls/parallel to buildings:

(a) Do not make contact with wall while moving along it:

- Bullets/shrapnel travel along walls.
- Stay elbow to arms length (1½ to 3 feet) off walls.

(b) Secure gear to avoid catching on wall objects.

(4) Corners:

(a) Observe the route before moving.

(b) Lie flat on the ground and look around the corner. Unmask your head below the height someone would expect to see it.

(c) Use a small piece of reflective material or mirror to clear around corner.

(5) High structures/roof top:

(a) Advantages. Facilitate signaling, hide site/observation, and recovery.

(b) Disadvantages. Silhouetting, little cover/concealment, few escape routes.

(c) People may spend time or sleep there.

(d) Gaining access to a rooftop from the outside is preferred.

- Climb drainpipes, adjacent trees, structures, and existing debris.
- Use the buddy system and window anchoring/wedging.
- Use outside stairwells, fire escapes, conduits, and chimneys.

(e) Be aware of structural integrity when negotiating any obstacle.

Note: Gaining access to a rooftop through the interior of a building/attic is not recommended unless the building is unoccupied.

(6) Negotiating walls as obstacles: The construction material of which walls are made determines the method to use for negotiating them.

(a) Under a wall: Negotiate by digging or using existing culvert, drainage, animal hole, etc.

(b) Through a wall: Negotiate by creating a hole or finding battle damage.

(c) Over a wall: Know what is on top of the wall (i.e., glass, wire, etc.) and on the other side prior to climbing up and over.

(7) Building entry techniques:

Note: Enter buildings/structures only if absolutely necessary.

(a) Determine an entry point prior to approaching the building. Have your weapon ready.

(b) Attempt to determine if the building is occupied prior to entering it.

(c) Be cautious of entering through ground level doors or windows.

(d) Use a building as a way to break pursuit.

(e) Exit the building as soon as possible. Using different entry and exit points forces the pursuer to slow down and assess the situation.

(8) Negotiating stairwells:

(a) Consider the construction of the stairwell and its construction materials prior to entering it.

(b) Ensure you have three-dimensional security while negotiating a stairwell.

(c) Step near support frames/points of attachment (i.e., nails, bolts, etc.).

(d) Stay to the outside of a stairwell to reduce the possibility of being observed.

(9) Negotiating sub-surface structures:

(a) Sewers and tunnels can provide cover and concealment, secure travel, and a defendable position.

(b) Enter through a manhole cover (this may require tools and ropes to open).

Note: Be aware of inherent hazards of the subterranean environment (i.e., flooding, gases, electricity, or animals).

5. Urban Hold-Up Areas/Hide Sites.

a. Selecting Potential Urban Shelters.

(1) Buildings.

(a) Attics.

(b) Basements and crawl spaces.

(2) Debris piles.

(3) Vehicles.

(4) Parks.

(5) Subterranean sites.

b. Improving Urban Shelters. Use available resources as early warning devices (e.g., broken glass, cans, animals, etc.).

c. Observation Techniques in Urban Shelters.

(1) Remain in shadows (do not silhouette).

(2) Observe:

(a) Through windows at angles.

(b) Using existing reflective surfaces.

(c) From/through inconspicuous locations (i.e., wall holes, vents, windows).

(d) Through layers (i.e., observe a 100-meter target through 75- and 50-meter obstacles).

(3) Be aware of sounds, smells, and vibrations.

6. Signaling, Communications Considerations, and Limitations

a. Pollution (air/light) limits signaling effectiveness.

b. GPS disruption/interference is common (structural/electrical, LOS).

c. LOS radios are limited in built-up areas.

d. The canyon effect is detrimental to communication and signaling.

e. Dense terrain makes it difficult to shoot azimuths to prominent landmarks/features.

7. Recovery Sites

a. Sports stadiums/fields.

b. Landfills.

c. Parks.

d. Cemeteries.

e. Golf courses.

8. Food and Water in Urban Areas

a. Purify all water, including tap water (consider all sources polluted).

b. Beware of chemically poisoned or treated water traps.

c. Utilize unorthodox water sources (drainages, puddles, sinks, and run-offs).

d. Know plants, animals, and local foods common to your area of operations.

e. Churches often have exterior water sources/spigots.

Note: Theft is not recommended and can carry inherent consequences. If theft is necessary to sustain life, take great steps to go unnoticed, taking only what you absolutely need (in and around densely populated areas).

NOTES

Appendix A
THE WILL TO SURVIVE

1. Psychology of Survival

a. Preparation:

(1) Know your capabilities and limitations and that of your equipment.

(2) Keep a positive attitude.

(3) Develop a realistic plan.

(4) Combat psychological stress.

(5) Recognize and be prepared to deal with stressors (i.e., injury, death, fatigue, illness, the environment, hunger, and isolation).

(6) Recognize and be prepared to deal with normal reactions to stressors (i.e., fear, anxiety, guilt, boredom, depression, and anger).

(7) Mitigate reactions created by stressors (i.e., doubt, indecision, withdrawal, forgetfulness, or carelessness).

b. Strengthen your will to survive with:

(1) A focus on the mission at hand.

(2) Remembering the Service core values.

(3) Your personal conviction and resolve.

(4) Remembering the Code of Conduct (appendix B).

(5) Focusing on patriotism (Pledge of Allegiance and patriotic songs).

(6) Focusing on your faith.

(7) Remembering short term and personal goals.

(8) Thoughts of returning to family, friends, and future plans.

c. Group dynamics of survival include:

(1) Strong leadership, good organization, and cohesiveness.

(2) Promotion of high morale.

(3) Delegation and empowerment of individuals.

(4) Panic prevention.

(5) Strong trust in one another.

(6) Formulation of group goals, teamwork.

(7) Taking care of one another.

(8) Reassurance and encouragement.

(9) Drawing strength from individuals who rise to the occasion.

d. Influencing factors:

(1) Enforce the chain of command.

(2) Organize according to individual capabilities.

(3) Accept suggestions and criticism.

2. Spiritual Considerations

a. Collect your thoughts and emotions.

b. Rely on your personal belief system.

(1) Identify your personal beliefs.

(2) Use self-control and discipline.

(3) Remember past inner sources to help overcome adversity.

(4) Exercise personal religious rituals (i.e., prayer, worship, recitation of religious writings, scripture, and songs), if any.

c. With other survivors:

(1) Create an environment where individuals can openly discuss his/her personal beliefs without fear of judgment, if they choose to do so.

(2) Encourage each other to maintain hope while waiting for rescue.

Note: Pressing spiritual considerations in large groups may not be advisable if doing so divides the group and/or creates active dissent.

It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change.

Appendix B
THE CODE OF CONDUCT

ARTICLE I

I am an American, fighting in the forces which guard my country and our way of life. I am prepared to give my life in their defense.

ARTICLE II

I will never surrender of my own free will. If in command, I will never surrender the members of my command while they still have the means to resist.

ARTICLE III

If I am captured, I will continue to resist by all means available. I will make every effort to escape and aid others to escape. I will accept neither parole nor special favors from the enemy.

ARTICLE IV

If I become a prisoner of war, I will keep faith with my fellow prisoners. I will give no information or take part in any action which might be harmful to my comrades. If I am senior, I will take command. If not, I will obey the lawful orders of those appointed over me and will back them up in every way.

ARTICLE V

When questioned, should I become a prisoner of war, I am required to give name, rank, service number, and date of birth. I will evade answering further questions to the utmost of my ability. I will make no oral or written statements disloyal to my country and its allies or harmful to their cause.

ARTICLE VI

I will never forget that I am an American, fighting for freedom, responsible for my actions, and dedicated to the principles which made my country free. I will trust in my God and in the United States of America.

NOTES

Appendix C
SURVIVOR TIPS AND TOOLS

1. Measurement Conversions.

Table 6. English System of Linear Measure

12 inches	=	1 foot
36 inches	=	1 yard
3 feet	=	1 yard
1,760 yards	=	1 mile statute
2,026.8 yards	=	1 mile nautical
5,280 feet	=	1 mile statute
6,080.4 feet	=	1 mile nautical
63,360 inches	=	1 mile statute
72,963 inches	=	1 mile nautical

Table 7. Metric to English Conversions

1 millimeter	=	millimeter	=	.0393 inches
10 millimeters	=	centimeter	=	.3937 inches
10 centimeters	=	decimeter	=	3.937 inches
10 decimeters	=	meter	=	39.37 inches
10 meters	=	decameter	=	32.81 feet
10 decameters	=	hectometer	=	328.1 feet
10 hectometers	=	kilometer	=	0.62 mile
10 kilometers	=	1.0 myriameter	=	6.21 miles

Table 8. Map Scales – English and Metric

SCALE	1 INCH = 'S	1 CENTIMETER = 'S
1:5,000	416.67 feet 127.00 meters	164.00 feet 50.00 meters
1:10,000	833.33 feet 254.00 meters	328.10 feet 100,00 meters
1:12,500	1,041.66 feet 317.00 meters	410.10 feet 125.00 meters
1:20,000	1,666.70 feet 508.00 meters	656.20 feet 200.00 meters
1:25,000	2,083.30 feet 635.00 meters	820.20 feet 250.00 meters
1:50,000	4,166.70 feet 1,270.00 meters	1,640.40 feet 500.00 meters
1:63,360	5,280 feet 1,609.30 meters	2,078.70 feet 633.60 meters
1:100,000	8,333.30 feet 2,540.00 meters	3,280.80 feet 1,000.00 meters
1:250,000	20,833.00 feet 6,350.00 meters	8,202.00 feet 2,500.00 meters
1:500,000	41,667.00 feet 12,700.00 meters	16,404.00 feet 5,000.00 meters

2. Shelter Construction Criteria

Table 9. Criteria for Shelter Construction		
Prepare **F**or **S**ome **V**ery **L**ong **H**ard **D**ays		
P	Protection	Environmental/elemental concerns
F	Free of Hazards	Fallen trees and limbs, animals, hazard areas
S	Stable	Must be tested before occupying
V	Ventilation	Free from gas pockets or lack of air flow
L	Location	Near resources, off lines of drift, has escape routes
H	Heat retention	Small; made of materials that allow heat retention
D	Drying facility	Drying racks or plan to stay dry in shelters

3. Rule of Three

Table 10. Rule of 3	
These are general rules to help the survivor focus on immediate needs and priorities in a survival situation. These will vary among individuals based on their immediate resources and physical conditions.	
3 minutes	After 3 minutes without air, the body begins to experience adverse effects.
3 hours	The body can suffer 3 hours of exposure to harsh elements before serious adverse effects or death.
3 days	The body can go approximately 3 days without water before serious adverse effects or death.

4. Map Protractor

Attach your map protractor for future use.

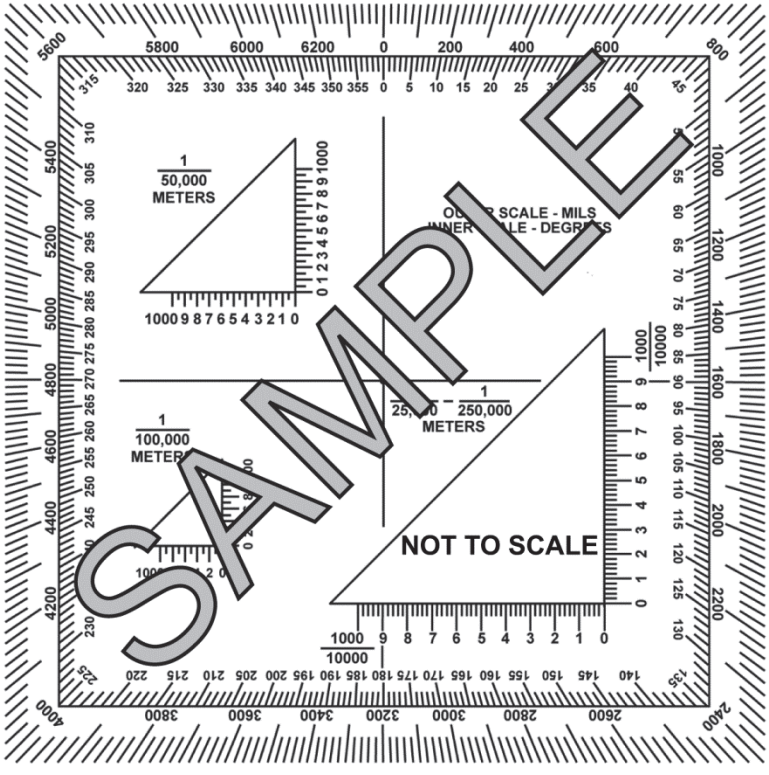


Figure 67. Protractor with Coordinate Scale (NOT TO SCALE)

NOTES

"In the final choice, a Soldier's pack is not as heavy as a prisoner's chains" – GEN Dwight D. Eisenhower

Appendix D
INDIVIDUAL SURVIVAL KIT CONSIDERATIONS

If you have been issued a survival kit, conduct an operational check and ensure you know how to use all items contained therein.

1. Basic Considerations

a. Tailor your survival kit to the environment and tactical situations:

(1) Hot climate

(2) Cold climate

(3) Open water

b. Consider the kit's size and weight when carried with mission essential equipment.

c. Consider where to carry it on your body (i.e., waist pack, fight suit pocket).

d. Scatter survival items throughout your uniform.

2. Construction

a. First Aid: Include basic essentials to augment what you already have.

b. Water: Include extra water and expedient methods to procure and carry it.

c. Food: Carry small energy producing foods (i.e., energy bars or breakfast bars) and a method to procure and prepare food

d. Signals: Carry devices listed in the contingency plan/EPA.

(1) Consider day/night/and other methods of signaling.

(2) Ensure to op-check anything that:

(a) contains batteries

(b) is mechanical

(c) has an expiration date.

e. Navigation: Ensure you have a small compass and map.

f. Shelter: Include waterproof materials (e.g., a poncho, tarp, trash bag, or solar blanket) and cordage (i.e., 550 cord, and boot laces).

g. Fire: Carry fire-starting devices that are all weather and can be carried on the mission (restrictions apply for air crews).

3. Other Items and Considerations

a. Knife/multi-tool.

b. Clothing.

(1) Waterproof clothing and extra socks in tropical environments.

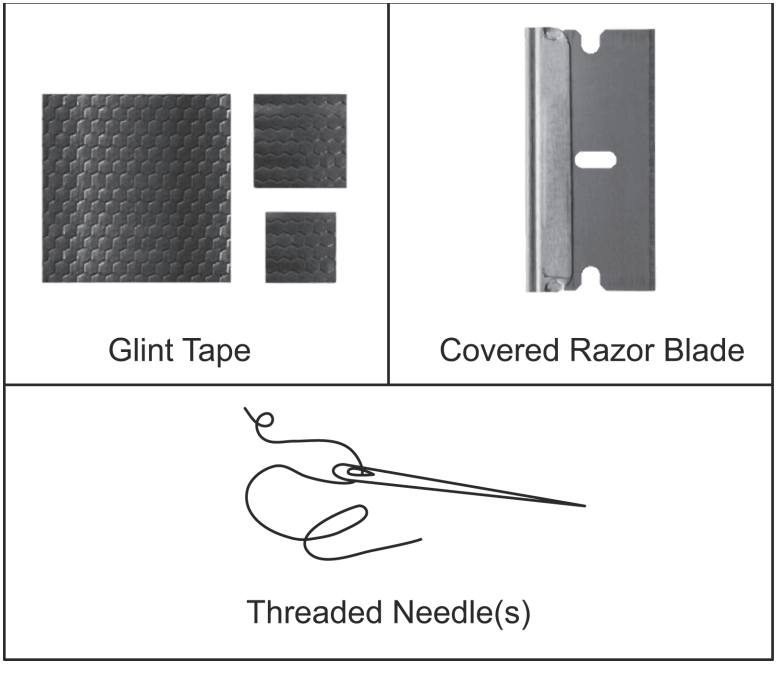
(2) Warm clothing in cold environment, preferably wool and synthetics (avoid cotton).

c. Extra batteries for mission essential radios.

d. Field expedient antenna kit.

e. Waterproof container.

"If you get the dirty end of the stick, sharpen it and turn it into a useful tool." –Colin Powell



Attach items with 100 MPH tape or similar, for future use.

Figure 68. Survival Kit Items

Appendix E
PUBLICATION INFORMATION

1. Purpose

This publication provides Service members a weatherproof, pocket-sized, quick reference on basic survival, evasion, and recovery information.

2. Scope

This multi-Service tactics, techniques, and procedures publication is designed to assist all Service members in a survival situation regardless of geographic location.

3. Applicability

The target audience for this publication is any Service member requiring basic survival, evasion, and recovery information.

4. Implementation Plan

Participating Service command offices of primary responsibility will review this publication, validate the information and, where appropriate, reference and incorporate it in Service manuals, regulations, and curricula as follows:

Army. Upon approval and authentication, this publication incorporates the procedures contained herein into the United States (US) Army Doctrine and Training Literature Program as directed by the Commander, US Army Training and Doctrine Command (TRADOC). Distribution is in accordance with applicable directives and the Initial Distribution Number (IDN) listed on the authentication page.

Marine Corps.[1] The Marine Corps will incorporate the procedures in this publication in US Marine Corps training and doctrine publications as directed by the Commanding General, US Marine Corps Combat Development Command (MCCDC). Distribution is in accordance with the Marine Corps Publications Distribution System (MCPDS).

Navy. The Navy will incorporate these procedures in US Navy training and doctrine publications as directed by the Commander, Navy Warfare Development Command (NWDC)[N5]. Distribution is in accordance with Military Standard Requisitioning and Issue Procedure (MILSTRIP) Desk Guide), Naval Supply Systems Command Publication 409 (NAVSUP Pub 409).

[1] Marine Corps PCN: 144 000068 00

Air Force. The Air Force will incorporate the procedures in this publication in accordance with applicable governing directives. Distribution is in accordance with Air Force Instruction 33-360.

5. User Information

a. The US Army Combined Arms Center (CAC), MCCDC, NWDC, the Curtis E. LeMay Center for Doctrine Development and Education (LeMay Center),and the Air Land Sea Application (ALSA) Center developed this publication with the joint participation of the approving Service commands. ALSA will review and update this publication as necessary.

b. This publication reflects current joint and Service doctrine, command and control organizations, facilities, personnel, responsibilities, and procedures. Changes in Service protocol, appropriately reflected in joint and Service publications, will likewise be incorporated in revisions to this document.

c. We encourage recommended changes for improving this publication. Key your comments to the specific page and paragraph and provide a rationale for each recommendation. Send comments and recommendations directly to the appropriate Service doctrine centers listed below.

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GLOSSARY

PART I — ABBREVIATIONS AND ACRONYMS

	A, B
AFTTP	Air Force tactics, techniques, and procedures
ALSA	Air Land Sea Application (Center)
ATTP	Army tactics, techniques, and procedures
BLISS	Blend, Low Silhouette, Irregular Shape, Small, Secluded Location
	C
CAC	Combined Arms Center
CADD	Combined Arms Doctrine Directorate
CPR	cardio pulmonary resuscitation
CSAR	combat search and rescue
	D
DOD	Department of Defense
DST	daylight savings time
	E
ELT	emergency locator transmitter
EPA	evasion plan of action
	F
FM	field manual
	G, H
GPS	Global Positioning System
GTAS	ground to air signal
	I
IAW	in accordance with
IDN	initial distribution number
ISOPREP	Isolated personnel report
	J, K
JP	joint publication
	L
LP/OP	listening post / observation post
LOC	line of communications
LOP	line of position
LOS	line of sight
	M
MCCDC	Marine Corps Combat Development Command
MCPDS	Marine Corps Publications Distribution System
MCRP	Marine Corps reference publication

MILSTRIP	Military Standard Requisitioning and Issue Procedure
MTTP	multi-Service tactics, techniques, and procedures

N

NAVSUP	Navy Supplement
NTTP	Navy tactics, techniques, and procedures
NWDC	Navy Warfare Development Command

O, P, Q, R, S

POW	prisoner of war
ROE	rules of engagement
SOP	standard operating procedure
SARNEG	search and rescue numerical encryption grid
SPINS	special instructions

T

TRADOC	United States Army Training and Doctrine Command
TTP	tactics, techniques, and procedures

U, V, W, X, Y, Z

US	United States
USAF	United States Air Force
UV	ultraviolet

PART II — TERMS AND DEFINITIONS

authenticate—A challenge given by voice or electrical means to attest to the authenticity of a message or transmission. (JP 1-02)

camouflage—The use of natural or artificial material on personnel, objects, or tactical positions with the aim of confusing, misleading, or evading the enemy. (FM 1-02)

concealment—The protection from observation or surveillance. (FM 1-02)

datum—1. A reference surface consisting of five quantities: the latitude and longitude of an initial point, the azimuth of a line from that point, and the parameters of the reference ellipsoid. 2. The mathematical model of the earth used to calculate the coordinates on any map. Different nations use different datums for printing coordinates on their maps. The datum is usually reference in the marginal information of each map (JP 1-02. Source N/A)

evasion and recovery—The full spectrum of coordinated actions carried out by evaders, recovery forces, and operational recovery planners to effect the successful return of personnel isolated in hostile territory to friendly control. Also called E&R. (FM 1-02)

evasion plan of action—A course of action, developed prior to executing a combat mission, that is intended to improve a potential isolated person's chances of successful evasion and recovery by providing the recovery forces with an additional source of information that can increase the predictability of the evader's actions and movement. Also called EPA. (JP 1-02. Source: JP 3-50)

isolated personnel report—A Department of Defense Form (DD 1833) containing information designed to facilitate the identification and authentication of an isolated person by a recovery force. Also called ISOPREP (JP 1-02. Source: JP 2-50)

NOTES

ATP 3-50.3 [**FM 3-50.3**]
MCRP 3-02H
NTTP 3-50.3
AFTTP 3-2.26

11 September 2012

By Order of the Secretary of the Army

Official:

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1215905

DISTRIBUTION:

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